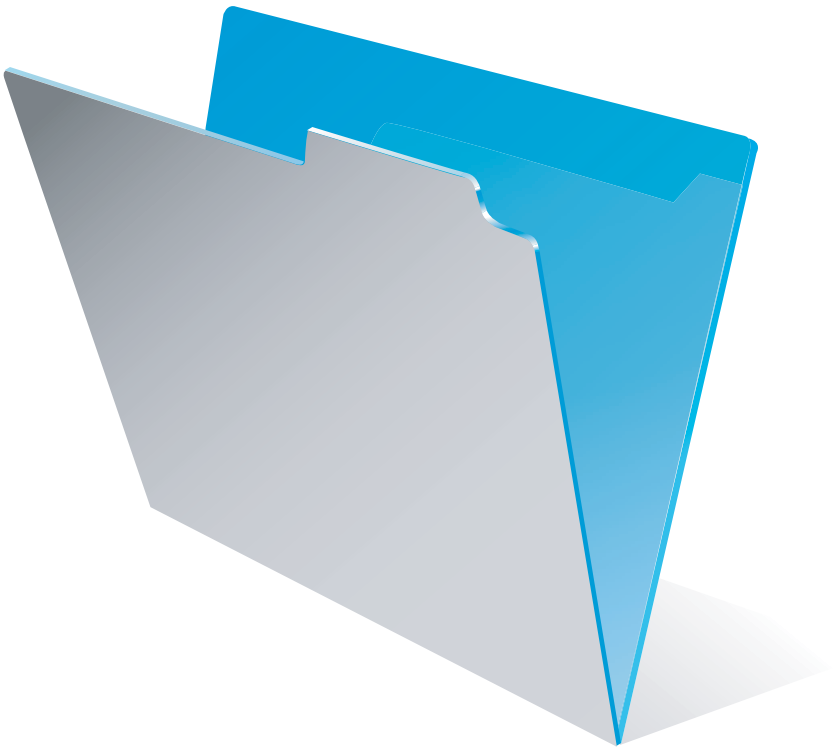
FileMaker® 8.5

Functions Reference



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Edition: 01

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Chapter 1
Introduction

About functions

A function is a predefined, named formula that performs a specific calculation and returns a single, specific value.

Most functions include three basic parts:

- the function
- a set of parentheses, if the function takes parameters
- the parameters required by the function

Each function returns a result of field type text, number, date, time, timestamp, or container.

FileMaker® Pro provides many functions for you to use in your FileMaker database solutions.

Using this functions reference

The content in this document was originally written for the FileMaker Pro and FileMaker Pro Advanced Help. It has been collected in this format to allow solution developers to read the information independent of the help system.

The following chapters present the functions by category. FileMaker Pro functions are grouped by the type of data they operate on, not by the type of data they return. For example, the `Position` function returns a number, but it is grouped with Text functions because it operates on text data.

Functions reference (alphabetical list)

This section lists the functions in alphabetical order.

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Chapter 2
Aggregate functions

Aggregate functions perform statistical analysis on numbers (and also dates or times for some functions) in:

- several fields in a record.
- related fields whether displayed in a portal or not.
- repeating fields.

For example, you can use the `Sum` function to add the values listed in a portal, as an alternative to creating a report with grouped data and subtotals.

The parameter values can include a numeric constant (for example, 10) or any valid expression. A constant parameter in a formula for a repeating field affects the result for every repetition.

When repeating field parameters (field1; field2;...) include a non-repeating field, that value is used in the result for only the first repetition unless you use the Extend function, page 156.

Values in repetitions that exceed the number of repetitions in the calculated field are ignored. For example, a calculated field with three repetitions holds only three results, even when one field referenced in the calculation has five repetitions.

Click a function name for details.

This function	Returns
Average, page 18	The average of all valid, non-blank values in the specified field.
Count, page 19	The number of valid, non-blank values in the specified field.
List, page 20	The concatenation of all non-blank values in list form, separated by carriage returns.
Max, page 21	The highest valid value in a field or fields.
Min, page 22	The smallest valid non-blank value in a field or fields.
StDev, page 23	The standard deviation of a series of valid non-blank values in a field or fields.
StDevP, page 25	The standard deviation of a population represented by a series of valid non-blank values in a field or fields.
Sum, page 26	The total of all valid, non-blank values in the specified fields.
Variance, page 27	The variance of a series of valid non-blank values in a field or fields.
VarianceP, page 28	The variance of a population in a series of valid non-blank values in a field or fields.

Average

Format

```
Average(field{;field...})
```

Parameter

`field` - any related field, repeating field, or set of non-repeating fields; or an expression that returns a field, repeating field, or set of non-repeating fields.

Parameters in curly braces { } are optional.

Data type returned

number

Description

Returns a value that is the average of all valid, non-blank values in `field`, where `field` can be any of the following:

- a repeating field `(repeatingField)`.
- a field in matching related records specified by `(table::field)`, whether or not these records appear in a portal.
- several non-repeating fields in a record `(field1;field2;field3...)`.
- corresponding repetitions of repeating fields in a record `(repeatingField1;repeatingField2;repeatingField3)`, if the result is returned in a repeating field with at least the same number of repeats.
- several fields in the first matching record specified by `(table::field1;table::field2;...)`. You can include fields from different tables `(table 1::field A;table 2::field B...)`.

Examples

A Student table has a portal showing scores for all exams a student has taken. The exam scores are in a table called Exams.

`Average(Exams::Score)` returns the student's average score for all exams she has taken.

In the following examples:

• Field1 contains two repetitions with values of 1 and 2.

• Field2 contains four repetitions with values of 5, 6, 7, and 8.

• Field3 contains 6.

`Average(Field2)` returns **6.5** when the calculation isn't a repeating field.

`Average(Field1;Field2;Field3)` returns **4**, **4**, **7**, **8** when the calculation is a repeating field.

Note When a referenced field is a repeating field, the `Average` function returns the average of the values in the first repetition field, then the average of the values in the second repetition field, and so on. Therefore, **(1+5+6)/3=4;(2+6)/2=4;7/1=7;8/1=8**.

Count

Format

```
Count(field{;field...})
```

Parameter

`field` - any related field, repeating field, or set of non-repeating fields; or an expression that returns a field, repeating field, or set of non-repeating fields.

Parameters in curly braces { } are optional.

Data type returned

number

Description

Returns the number of valid, non-blank values in `field` where `field` can be any of the following:

- a repeating field `(repeatingField)`.
- a field in matching related records specified by `(table::field)`, whether or not these records appear in a portal.
- several non-repeating fields in a record `(field1;field2;field3...)`.
- corresponding repetitions of repeating fields in a record `(repeatingField1;repeatingField2;repeatingField3)`, if the result is returned in a repeating field with at least the same number of repeats.
- several fields in the first matching record specified by `(table::field1;table::field2;...)`. You can include fields from different tables `(table 1::field A;table 2::field B...)`.

Examples

The Accounts layout has a portal showing installment payments made.

`Count(Payments::Payment)` returns the number of payments made on an account.

In the following examples:

- Field1 contains two repetitions with values of 1 and 2.
- Field2 contains four repetitions with values of 5, 6, 7, and 8.
- Field3 contains 6.

`Count(Field2)` returns **4** when the calculation isn't a repeating field.

`Count(Field1;Field2;Field3)` returns **3**, **2**, **1**,**1** when the calculation is a repeating field.

Note When a referenced field is a repeating field, the `Count` function returns the total number of valid, non-blank values in the first repetition field, then the number of valid, non-blank values in the second repetition field, and so on.

List

Format

`List(field{;field...})`

Parameter

`field` - any related field, repeating field, or set of non-repeating fields; or an expression that returns a field, repeating field, or set of non-repeating fields.

Parameters in curly braces { } are optional.

Data type returned

text

Description

Returns a concatenated list of non-blank values (separated by carriage returns) for either:

- a single field `(table::field)`, calculates a single result over all repetitions (if any) for this field and over all matching related records, whether or not these records appear in a portal.
- several fields and/or literal values `(table::field1,constant,table::field2...)`, calculates a separate result for each repetition of the calculation across each corresponding repetition of the fields. If any fields are related, only the first related record is used.

Examples

In the following examples:

- Field1 contains white.
- Field2 contains black.
- Field3 contains three repetitions with values of red, green, blue.
- Related::Field4 refers to three records that contain 100, 200, 300.

Note When referencing multiple repeating fields, `List()` returns the list of the values across the first repetition in the calculation's first repetition, then the list of the values across the second repetition in the second repetition, and so on.

Example 1

`List (Field1; Field2)` returns:

white

black

Example 2

`List(Field3)` returns:

red

green

blue

Example 3

`List (Field1; Field2; Field3)` returns:

in calculation repetition 1:

white

black

red

in calculation repetition 2:

green

in calculation repetition 3:

blue

Example 4

`List(Related::Field4)` returns:

100

200

300

Max

Format

```
Max(field{;field...})
```

Parameter

`field` - any related field, repeating field, or set of non-repeating fields; or an expression that returns a field, repeating field, or set of non-repeating fields.

Parameters in curly braces { } are optional.

Data type returned

text, number, date, time, timestamp

Description

Returns the highest valid value in:

- a repeating field `(repeatingField)`.
- a field in matching related records specified by `(table::field)`, whether or not these records appear in a portal.
- several non-repeating fields in a record `(field1;field2;field3...)`.
- corresponding repetitions of repeating fields in a record `(repeatingField1;repeatingField2;repeatingField3)`, if the result is returned in a repeating field with at least the same number of repeats.
- several fields in the first matching record specified by `(table::field1;table::field2;...)`. You can include fields from different tables `(table 1::field A;table 2::field B...)`.

Examples

The Accounts layout has a portal showing installment payments made.

`Max(Payments::PaymentDate)` returns the most recent date a payment was made on an account.

In the following examples:

- Field1 contains two repetitions with values of 1 and 2.
- Field2 contains four repetitions with values of 5, 6, 7, and 8.
- Field3 contains 6.

`Max(Field2)` returns **8** when the calculation isn't a repeating field.

`Max(Field1;Field2;Field3)` returns **6**, **6**, **7**, **8** when the calculation is a repeating field.

Note When a referenced field is a repeating field, the `Max` function returns the maximum value in the first repetition field, then the maximum value in the second repetition field, and so on.

Min

Format

`Min(field{;field...})`

Parameter

`field` - any related field, repeating field, or set of non-repeating fields; or an expression that returns a field, repeating field, or set of non-repeating fields.

Parameters in curly braces { } are optional.

Data type returned

text, number, date, time, timestamp

Description

Returns the smallest valid non-blank value in:

- a repeating field `(repeatingField)`.
- a field in matching related records specified by `(table::field)`, whether or not these records appear in a portal.
- several non-repeating fields in a record `(field1;field2;field3...)`.
- corresponding repetitions of repeating fields in a record `(repeatingField1;repeatingField2;repeatingField3)`, if the result is returned in a repeating field with at least the same number of repeats.
- several fields in the first matching record specified by `(table::field1;table::field2;...)`. You can include fields from different tables `(table 1::field A;table 2::field B...)`.

Examples

A Contracts table has a portal showing bids submitted for each contract.

`Min(Bids::Price)` returns the lowest bid submitted for a contract.

In the following examples:

- Field1 contains two repetitions with values of 1 and 2.
- Field2 contains four repetitions with values of 5, 6, 7, and 8.
- Field3 contains 6.

`Min(Field2)` returns **5** when the calculation isn't a repeating field.

`Min(Field1;Field2;Field3)` returns **1**, **2**, **7**, **8** when the calculation is a repeating field.

Note When a referenced field is a repeating field, the `Min` function returns the minimum value in the first repetition field, then the minimum value in the second repetition field, and so on.

StDev

Format

`StDev(field{;field...})`

Parameter

`field` - any related field, repeating field, or set of non-repeating fields; or an expression that returns a field, repeating field, or set of non-repeating fields.

Parameters in curly braces { } are optional.

Data type returned

number

Description

Returns the standard deviation of the sample represented by a series of non-blank values in:

- a repeating field `(repeatingField)`.
- a field in matching related records specified by `(table::field)`, whether or not these records appear in a portal.
- several non-repeating fields in a record `(field1;field2;field3)`.
- corresponding repetitions of repeating fields in a record `(repeatingField1;repeatingField2;repeatingField3)`, if the result is returned in a repeating field with at least the same number of repeats.
- several fields in the first matching record specified by `(table 1::field A, table 2::field B,...)`. You can name a different table for each field `(table 1::field A;table 2::field B...)`.

$$\text{StDev} = \sqrt{\frac{x_1^2 + x_2^2 + \ldots + x_n^2}{n-1} - \frac{(x_1 + x_2 + \ldots + x_n)^2}{n(n-1)}}$$

Examples

A portal displays the related values 5, 6, 7, and 8 in a field called `Scores`. `StDev(table::Scores)` returns **1.29099444...**.

In the following examples:

- Field1 contains two repetitions with values of 1 and 2.
- Field2 contains four repetitions with values of 5, 6, 7, and 8.
- Field3 contains four repetitions with values of 6, 0, 4, and 4.
- Field4 contains one repetition with a value of 3.

`StDev(Field4)` results in an error because standard deviation of a single number is not defined.

`StDev(Field1;Field2;Field3)` returns **2.64575131...**, **3.05505046...**, **2.12132034...**, **2.82842712...** for a repeating field.

Note When a referenced field is a repeating field, the `StDev` function returns the standard deviation in the first repetition fields, then the standard deviation in the second repetition fields, and so on.

StDevP

Format

`StDevP(field{;field... })`

Parameter

`field` - any related field, repeating field, or set of non-repeating fields; or an expression that returns a field, repeating field, or set of non-repeating fields.

Parameters in curly braces { } are optional.

Data type returned

number

Description

Returns the standard deviation of a population represented by a series of non-blank values in:

- a repeating field `(repeatingField)`.
- a field in matching related records specified by `(table::field)`, whether or not these records appear in a portal.
- several non-repeating fields in a record `(field1;field2;field3...)`.
- corresponding repetitions of repeating fields in a record `(repeatingField1;repeatingField2;repeatingField3)`, if the result is returned in a repeating field with at least the same number of repeats.
- several fields in the first matching record specified by `(table::field1;table::field2;...)`. You can include fields from different tables `(table 1::field A;table 2::field B...)`.

$$\text{StDevP} = \sqrt{\frac{x_1^2 + x_2^2 + \ldots + x_n^2}{n} - \left(\frac{x_1 + x_2 + \ldots + x_n}{n}\right)^2}$$

Examples

A portal displays the related values 5, 6, 7, and 8 in the field `Scores`. `StDevP(table::Scores)` returns **1.11803398...**.

In the following examples:

- Field1 contains two repetitions with values of 1 and 2.
- Field2 contains four repetitions with values of 5, 6, 7, and 8.
- Field3 contains four repetitions with values of 6, 0, 4, and 4.
- Field4 contains one repetition with a value of 3.

`StDevP(Field4)` results in an error because the population standard deviation of a single number is not defined.

`StDevP(Field2)` returns **1.11803398...** for a non-repeating field.

`StDevP(Field1;Field2;Field3)` returns **2.16024689...**, **2.49443825...**, **1.5**, **2** for repeating fields.

Note When a referenced field is a repeating field, the `StDevP` function returns the standard deviation of a population in the first repetition fields, then the standard deviation of a population in the second repetition fields, and so on.

Sum

Format

`Sum(field{;field...})`

Parameter

`field` - any related field, repeating field, or set of non-repeating fields; or an expression that returns a field, repeating field, or set of non-repeating fields.

Parameters in curly braces { } are optional.

Data type returned

number

Description

Returns the total of all valid, non-blank values in:

- a repeating field `(repeatingField)`.
- a field in matching related records specified by `(table::field)`, whether or not these records appear in a portal.
- several non-repeating fields in a record `(field1;field2;field3...)`.
- corresponding repetitions of repeating fields in a record `(repeatingField1;repeatingField2;repeatingField3)`, if the result is returned in a repeating field with at least the same number of repeats.
- several fields in the first matching record specified by `(table::field1;table::field2;...)`. You can include fields from different tables `(table 1::field A;table 2::field B...)`.

Examples

An Invoice table has a portal showing line items.

`Sum(LineItems::ExtendedPrice)` totals the amounts for all items on the invoice.

A TimeBilling table has a portal showing time worked on a project. Hours is a time field.

`Sum(Hours::BillableHours)` returns the total number of billable hours on a project. Thus, if the portal shows **40** hours and **15:30** hours, the total billable hours are **55:30**, or **55 1/2** hours.

In the following examples:

- Field1 contains two repetitions with values of 1 and 2.
- Field2 contains four repetitions with values of 5, 6, 7, and 8.
- Field3 contains 6.

If the calculation result isn't a repeating field:

`Sum(Field2)` returns **26**.

`Sum(Field1;Field2;Field3)` returns **12**.

If the calculation result is a repeating field:

`Sum(Field2)` returns a repeating field with **26** in the first repetition.

`Sum(Field1;Field2;Field3)` returns a repeating field with **12**, **8**, **7**, **8**.

Note When a referenced field is a repeating field, the `Sum` function returns the sum of the first repetition field, then the sum of the second repetition field, and so on.

Variance

Format

```
Variance(field{;field...})
```

Parameter

`field` - any related field, repeating field, or set of non-repeating fields; or an expression that returns a field, repeating field, or set of non-repeating fields.

Parameters in curly braces { } are optional.

Data type returned

number

Description

Returns the variance of a sample represented by a series of non-blank values. The variance of a distribution is a measure of how spread out the distribution is. Use this function on any of the following fields:

- a repeating field `(repeatingField)`.
- a field in matching related records specified by `(table::field)`, whether or not these records appear in a portal.
- several non-repeating fields in a record `(field1;field2;field3...)`.
- corresponding repetitions of repeating fields in a record `(repeatingField1;repeatingField2;repeatingField3)`, if the result is returned in a repeating field with at least the same number of repeats.

- several fields in the first matching record specified by `(table::field1;table::field2;...)`. You can include fields from different tables `(table 1::field A;table 2::field B...)`.

$$\text{Variance} = \frac{x_1^2 + x_2^2 + \ldots + x_n^2}{n-1} - \frac{(x_1 + x_2 + \ldots + x_n)^2}{n(n-1)}$$

Examples

A portal displays the related values 5, 6, 7, and 8 in `Scores`.

`Variance(table::Scores)` returns **1.66666666...**.

In the following examples:

- Field1 contains two repetitions with values of 1 and 2.
- Field2 contains four repetitions with values of 5, 6, 7, and 8.
- Field3 contains four repetitions with values of 6, 0, 4,and 4.
- Field4 contains one repetition with a value of 3.

`Variance(Field4)` results in an error since the variance of a single value is not defined.

`Variance(Field1;Field2;Field3)` returns **7, 9.33333333...**, **4.5**, **8** if the calculation is a repeating field.

Student example:

Two classes of students take an exam. Class 1 has scores of 70, 71, 70, 74, 75, 73, 72, and Class 2 has scores of 55, 80, 75, 40, 65, 50, 95. The variance for each class is:

Class 1: **3.80952380...**

Class 2: **361.90476190...**

The variance for Class 1 is much lower than the variance for Class 2, because the scores for Class 2 are more spread out.

VarianceP

Format

`VarianceP(field{;field...})`

Parameter

`field` - any related field, repeating field, or set of non-repeating fields; or an expression that returns a field, repeating field, or set of non-repeating fields.

Parameters in curly braces { } are optional.

Data type returned

number

Description

Returns the variance of a population represented by a series of non-blank values. The variance of a population distribution is a measure of how spread out the distribution is. Use this function on any of the following fields:

- a repeating field `(repeatingField)`.
- a field in matching related records specified by `(table::field)`, whether or not these records appear in a portal.
- several non-repeating fields in a record `(field1;field2;field3...)`.
- corresponding repetitions of repeating fields in a record `(repeatingField1;repeatingField2;repeatingField3)`, if the result is returned in a repeating field with at least the same number of repeats.
- several fields in the first matching record specified by `(table::field1;table::field2;...)`. You can include fields from different tables `(table 1::field A;table 2::field B...)`.

$$\text{VarianceP} = \frac{x_1^2 + x_2^2 + \ldots + x_n^2}{n} - \left(\frac{x_1 + x_2 + \ldots + x_n}{n}\right)^2$$

Examples

A portal displays the related values 5, 6, 7, and 8 in Scores.

`VarianceP(table::Scores)` returns **1.25**.

In the following examples:

- Field1 contains two repetitions with values of 1 and 2.
- Field2 contains four repetitions with values of 5, 6, 7, and 8.
- Field3 contains four repetitions with values of 6, 0, 4, and 4.
- Field4 contains one repetition with a value of 3.

`VarianceP(Field4)` results in an error since the variance of a single value is not defined.

`VarianceP(Field1;Field2;Field3)` returns **4.66666666..., 6.22222222..., 2.25, 4** if the calculation is a repeating field.

Student example:

Two classes of students take an exam. Class 1 has scores of 70, 71, 70, 74, 75, 73, 72 and Class 2 has scores of 55, 80, 75, 40, 65, 50, 95. The population variance for each class is:

Class 1: **3.26530612...**

Class 2: **310.20408163...**

The population variance for Class 1 is much lower than the population variance for Class 2 because the scores for Class 1 are more tightly clustered.

Chapter 3
Date functions

Date functions calculate dates and manipulate date information.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Note System formats affect the way dates are displayed. See FileMaker Pro help.

Click a function name for details.

This function	Returns
Date, page 32	The calendar date for the specified month, day, and year.
Day, page 32	A number in the range 1 through 31, representing the day of the month for a specified date.
DayName, page 33	A text string that is the full name of the weekday for the specified date.
DayNameJ, page 34	A text string that is the full name of the weekday for the specified date in Japanese.
DayOfWeek, page 34	A number representing the day of the week the specified date falls on.
DayOfYear, page 35	A number equal to the number of days from the beginning of the year of the specified date.
Month, page 35	A number in the range 1 through 12, representing the number of the month of the year in which the specified date occurs.
MonthName, page 36	The name of the month for the specified date.
MonthNameJ, page 36	The name of the month in Japanese for the specified date.
WeekOfYear, page 37	The number of weeks after January 1 of the year of the specified date.
WeekOfYearFiscal, page 37	A number between 1 and 53 representing the week containing a specified date, figured according to the specified starting day.
Year, page 38	A number representing the year in which the specified date occurs.
YearName, page 39	The Japanese year name of the specified date, provided in the specified format.

Date

Format

`Date(month;day;year)`

Parameters

`month` - the month of the year (a number from 1 to 12).

`day` - the day of the month (a number from 1 to 31).

`year` - the year (four digits between 0001 and 4000. For example, 2005 but not 05).

Important The order of the parameters in the `Date` function is always Month, Day, Year, no matter what operating system or FileMaker Pro date formats you are using.

Data type returned

date

Description

Returns the calendar date for `month`, `day`, and `year`.

The format of the result depends on the date format that was in use when the database file was created. In the United States, dates are generally in the format MM/DD/YYYY. You can change the date format in the Regional Settings Control Panel (Windows 2000), the Date and Time Control Panel (Windows XP), or the Date & Time System Preference (Mac OS).

You can change how the date is displayed by assigning a different date format to the field in Layout mode. Changing the formatting in this way only affects the way the data is displayed, not how it is stored.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Note If you type a month greater than 12 or a day greater than the number of days in a month, FileMaker Pro adds the extra days or months to the result. For example, `Date(13;1;2004)` returns **1/1/2005**.

Example

`Date(10;11;2004)` returns **10/11/2004**.

Day

Format

`Day(date)`

Parameter

`date` - any calendar date

Data type returned

number

Description

Returns a number in the range 1 through 31, representing the day of the month on which `date` occurs. For example, you can identify the day of the month that payments are due.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Examples

`Day("5/15/2004")` returns **15**. This example assumes that the system date format is MM/DD/YYYY.

`Day(DateSold)` returns the day of the month stored in DateSold.

`If(Day(Get(CurrentDate))= 15 and Month(Get(CurrentDate))=3;"Beware the Ides of March";"")` displays the text **Beware the Ides of March** only when the day of the month returned by `Get(CurrentDate)` is 15 and the month returned by `Get(CurrentDate)` is 3; otherwise it displays nothing.

DayName

Format

`DayName(date)`

Parameter

`date` - any calendar date

Data type returned

text

Description

Returns a text string that is the full name of the weekday for `date`.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Examples

`DayName(Date(10;7;2004))` returns **Thursday**.

`DayName(ProjectDue)` returns **Friday** when ProjectDue is 10/8/2004.

`DayName("10/10/2004")` returns **Sunday**.

`"Return your selection by "& DayName(DueDate)` displays the text **Return your selection by** followed by the name of the day stored in DueDate.

DayNameJ

Format

`DayNameJ(date)`

Parameter

`date` - any calendar date

Data type returned

text

Description

Returns a text string in Japanese that is the full name of the weekday for `date`.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Example

`DayNameJ(Date(4;4;2003))` returns 金曜日

DayOfWeek

Format

`DayOfWeek(date)`

Parameter

`date` - any calendar date

Data type returned

number

Description

Returns a number representing the day of the week that `date` falls on. The number 1 represents Sunday, 2 represents Monday, 3 represents Tuesday, and so on. For example, you can find out what day of the week a holiday falls on.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Examples

`DayOfWeek("10/8/2004")` returns **6**.

`DayOfWeek(Date(10;9;2004))` returns **7**.

`DayOfWeek(ProjectDue)` returns **2** when the date in ProjectDue is 10/11/2004.

DayOfYear

Format

`DayOfYear(date)`

Parameter

`date` - any calendar date

Data type returned

number

Description

Returns a number equal to the number of days from the beginning of the year of `date`.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Examples

`DayOfYear(Billing Date)` returns **33**, when Billing Date is 2/2/2005.

The following formulas return the total number of days in the current year:

```
DayOfYear(Date(12;31;Year(Get(CurrentDate))))
```

```
DayOfYear(Date(1;1;Year(Get(CurrentDate)) + 1) -1)
```

Month

Format

`Month(date)`

Parameter

`date` - any calendar date

Data type returned

number

Description

Returns a number in the range 1 through 12, representing the number of the month of the year in which `date` occurs.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Examples

`Month("3/19/2004")` returns **3**. This example assumes that the operating system date format is set to MM/DD/YYYY.

`Month(Payment)` returns **3**, where Payment contains March 16, 2004. (The Payment field must be of type date.)

`"Bill Due by: " & Date(Month(DateSold) + 1;Day(DateSold);Year(DateSold))` returns **Bill Due by:** followed by a value that is one month later than DateSold.

MonthName

Format

`MonthName(date)`

Parameter

`date` - any calendar date

Data type returned

text

Description

Returns the full name of the month for `date`.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Examples

`MonthName("6/6/2004")` returns **June**.

`"Payment due by the end of: " & MonthName(Date(Month(InvoiceDate) + 1;Day(InvoiceDate);Year(InvoiceDate)))` returns **Payment due by the end of May**, where InvoiceDate is 4/4/2004.

`"Payment for: " & MonthName(Date(Month(Payment) + 1;Day(Payment);Year(Payment)))` returns **Payment for:** followed by the name of the month that is one past the month of the last payment.

MonthNameJ

Format

`MonthNameJ(date)`

Parameter

`date` - any calendar date

Data type returned

text

Description

Returns the name of the month of `date` in Japanese.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Example

`MonthNameJ("6/6/2003")` returns 6月

WeekOfYear

Format

`WeekOfYear(date)`

Parameter

`date` - any calendar date

Data type returned

number

Description

Returns the number of weeks after January 1 of the year of `date`. Fractions of weeks occurring at the beginning or end of the year count as full weeks, so the `WeekOfYear` function returns values 1 through 54.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Examples

`WeekOfYear("1/1/2005")` returns **1**.

`WeekOfYear(ProjectDue)` returns **6**, when ProjectDue is 2/2/2005.

WeekOfYearFiscal

Format

`WeekOfYearFiscal(date;startingDay)`

Parameters

`date` - any calendar date

`startingDay` - any number between 1 and 7, where 1 represents Sunday

Data type returned

number

Description

Returns a number between 1 and 53 representing the week containing `date`, figured according to startingDay. `startingDay` indicates which day is considered the first day of the week.

The first week of the year is the first week that contains four or more days of that year. For example, if you select 1 (Sunday) as the starting day, then January 1 must be on Sunday, Monday, Tuesday, or Wednesday for that week to be the first week of the fiscal year. If you select 2 (Monday) as the starting day, then January 1 must be on Monday, Tuesday, Wednesday, or Thursday for that week to be the first week of the fiscal year.

It is possible, using this function, that dates in a particular year will be returned as the 53rd week of the previous year. For example, if in 2003 you selected Sunday (1) as the starting date, then January 1, 2, or 3 in 2004 would occur in week 53 of fiscal year 2003 (in 2004, January 1 is on a Thursday). The first day of fiscal year 2004 would be on Sunday, January 4, because you selected Sunday (1) as the starting day.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Examples

`WeekOfYearFiscal(Date(1;3;2004);1)` returns **53**.

`WeekOfYearFiscal(Date(1;4;2004);1)` returns **1**.

`WeekOfYearFiscal(Date(1;1;2004);5)` returns **1**.

Year

Format

`Year(date)`

Parameter

`date` - any calendar date

Data type returned

number

Description

Returns a number representing the year in which `date` occurs. For example, you can extract the year from a field containing the date an item sold.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Examples

`Year(DateSold)` returns the year stored in DateSold.

`Year("5/5/2004")` returns **2004**.

`Year(Date(Month(Get(CurrentDate)) + 48;Day(Get(CurrentDate));Year(Get(CurrentDate))))` returns the year that is 48 months from today's date.

YearName

Format

`YearName(date;format)`

Parameters

`date` - any calendar date

`format` - a number (0, 1, or 2) that describes the display format

Data type returned

text

Description

Returns the Japanese year name of `date`, provided in the specified format. If the value for `format` is blank or other than 0, 1, or 2, then 0 is used.

Format

0 - Meiji (明治) 8, Taisho (大正) 8, Showa (昭和) 8, Heisei (平成) 8 (before 1868.9.8, Seireki (西暦xxxx)

1 - Mei (明) 8, Tai (大) 8, Sho (昭) 8, Hei (平) 8 (before 1868.9.8, Sei (西暦xxxx)

2 - M8, T8, S8, H8 (before 1868.9.8, A.D.xxxx)

Name of Emperor in 0 = Long, 1 = Abbreviated, 2 = 2 byte Roman. Seireki is returned when date is before listed emperors.

Example

`YearName(DateField;0)` Returns 平成 14 when DateField contains 7/17/2002.

Chapter 4
Design functions

Design functions return information about the structure of open database files. For example, you could determine the names of all the layouts or fields in an open database file.

Note FileMaker Pro limits the information returned by a design function, according to the privilege set in effect when the function evaluates a database file. See FileMaker Pro help for more information about granting access to database files.

Design function parameters can be any of the following:

- filenames such as "Customer" or literal text such as "Jack"
- field such as `layoutName`
- other functions such as `Left(text;number)`

Important Literal text parameters such as filenames and layout names must be enclosed in quotation marks. Use quotation marks around field names to indicate the literal string is the parameter (omit quotation marks to indicate the value stored in the field is the parameter). You can use spaces before or after the parentheses that enclose parameters, but spaces are not necessary. Use a semicolon between parameters when a function requires more than one parameter.

Click a function name for details.

This function	Returns
DatabaseNames, page 43	A list of the names of all database files open on the computer (including files opened as a client), separated by carriage returns.
FieldBounds, page 43	The location of each side of the specified field and its rotation in degrees.
FieldComment, page 44	The specified field's comment.
FieldIDs, page 45	A list of all field IDs in the specified database file and layout, separated by carriage returns.
FieldNames, page 45	A list of the names of all fields on the specified layout, separated by carriage returns.
FieldRepetitions, page 46	The number of repetitions of the specified field as it is formatted on the specified layout (which could be different from the number of repetitions specified when the field was defined), and the orientation of the field repetitions (horizontal or vertical) on the layout.
FieldStyle, page 47	The formatting applied to the specified field on the specified layout.
FieldType, page 48	Information about the specified field.
GetNextSerialValue, page 49	The next serial number for the specified field in the specified database file.
LayoutIDs, page 49	A list of all layout IDs in the specified database file, separated by carriage returns.

This function	Returns
LayoutNames, page 50	A list of the names of all layouts in the specified database file, separated by carriage returns.
LayoutObjectNames, page 50	A list of the names of all named layout objects, separated by carriage returns.
RelationInfo, page 51	A list of four values for each relationship directly related to the specified table.
ScriptIDs, page 52	A list of all script IDs in the specified database file, separated by carriage returns.
ScriptNames, page 53	A list of the names of all scripts in the specified database file, separated by carriage returns.
TableIDs, page 53	A list of all table IDs in the specified database file, separated by carriage returns.
TableNames, page 54	A list of the names of all defined tables in the specified database file, separated by carriage returns.
ValueListIDs, page 54	A list of all value list IDs in the specified database file, separated by carriage returns.
ValueListItems, page 55	A list of the values in the specified value list, separated by carriage returns.
ValueListNames, page 55	A list of the names of all value lists in the specified database file, separated by carriage returns.
WindowNames, page 56	A list of the names of open windows in the specified database file.

DatabaseNames

Format

`DatabaseNames`

Parameter

None

Data type returned

text

Description

Returns a list of the names of all database files open on the computer, separated by carriage returns. The names do not include file extensions.

Note If your database is hosted on another computer, `DatabaseNames` returns a list of the names of local client and remote database files open only on the client computer.

Example

To determine whether “Customers” is one of the files currently open, use the `DatabaseNames` function with the `Position` function in the formula: `Position(DatabaseNames;”Customers”;1;1)`. If the formula returns a value greater than **0**, then Customers is open.

FieldBounds

Format

`FieldBounds(fileName;layoutName;fieldName)`

Parameters

`fileName` - the name of an open database file (local or remote).

`layoutName` - the name of a layout in the specified database file.

`fieldName` - the name of a field on the specified layout.

Important See “Design functions” on page 41 for information about literal text parameters.

Data type returned

text

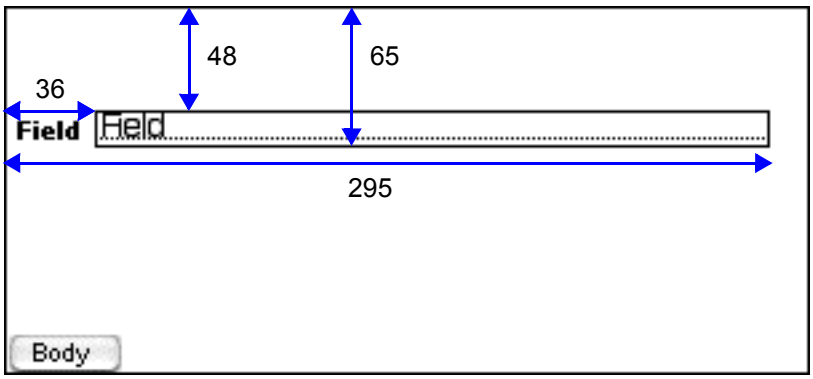
Description

Returns in a non-repeating text field the location in pixels of each side of `fieldName` and its rotation in degrees on `layoutName` in the fileName file. The location is measured from the top left corner of the layout (regardless of printer margins) and is specified in this order: position of left field boundary, position of top field boundary, position of right field boundary, position of bottom field boundary, degree of rotation (measured in a counter-clockwise direction; 0 degrees for unrotated).

Note Your layout begins where your margins end. Because field boundaries are measured from the left side and top of the layout, boundaries returned by `FieldBounds` never change unless you move or re-size a field.

Example

`FieldBounds("Customers";"Layout #1";"Field")` returns **36 48 295 65 0** in the example below. Notice that all parameters are enclosed in quotation marks.



FieldComment

Format

`FieldComment(fileName;fieldName)`

Parameters

`fileName` - the name of an open database file (local or remote).

`fieldName` - the name of a field in the specified database file.

Important See “Design functions” on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns the specified field's comment. The field name must be in the form `tablename::fieldname` to specify a field that exists in a table different from the current table.

Examples

`FieldComment("Customers"; "Phone Number")` returns "**Customer's home telephone number**" if it was entered as a comment for the Phone Number field.

`FieldComment("Customers"; "Accounts::Current Balance")` returns "**Customer's current balance**" if it was entered as a comment for the Current Balance field in the Accounts table.

FieldIDs

Format

`FieldIDs(fileName;layoutName)`

Parameters

`fileName` - the name of an open database file (local or remote).

`layoutName` - the name of a layout or table in the specified database file.

Important See "Design functions" on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns a list of all field IDs in `fileName` and `layoutName`, separated by carriage returns. Related fields are returned as **TableID::RelatedFieldID**.

For example, **12::4**, where **12** is the ID of the table and **4** is the ID of the related field.

If layoutName is empty, then the field IDs of the default table will be returned.

Examples

`FieldIDs("Customers";"")` returns IDs of all unique fields in the default table of Customers.

`FieldIDs("Customers";"Layout#5")` returns IDs of all unique fields, including related fields, on Layout#5 in Customers.

FieldNames

Format

`FieldNames(fileName;layoutName)`

Parameters

`fileName` - the name of an open database file (local or remote).

`layoutName` - the name of a layout or table in the specified database file.

Important See “Design functions” on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns a list of the names of all fields on `layoutName`, in `fileName` file, separated by carriage returns. Related fields are displayed in `tablename::fieldname` format.

If `layoutName` isn't specified, then the field names of the first table created (the “default table”) will be returned.

Note If `FieldNames` returns a question mark (?) or the name of only one field, go to the Specify Calculation dialog box and make sure the **Calculation result is** text. Also, you can increase the size of the field on the layout to show more field names.

Examples

`FieldNames("Customers";"")` returns a list of all the fields in the default table of the Customers database file.

`FieldNames("Customers";"Data Entry")` returns a list of all the fields, including related fields, in the Customers database file that appear on the Data Entry layout.

FieldRepetitions

Format

```
FieldRepetitions(fileName;layoutName;fieldName)
```

Parameters

`fileName` - the name of an open database file (local or remote).

`layoutName` - the name of a layout in the specified database file.

`fieldName` - the name of a field on the specified layout.

Important See “Design functions” on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns the number of repetitions of the repeating field `fieldName` as it is currently formatted on `layoutName` (which could be different from the number of repetitions when the field was defined), and the orientation of the field repetitions (horizontal or vertical) on the layout. If `fieldName` isn't a repeating field, it returns **1 vertical**.

Example

`FieldRepetitions("Customers";"Data Entry";"Business Phone")` returns **3 vertical** if the Business Phone field is defined as a repeating field with five repetitions but is formatted to only show three repetitions in a vertical orientation on the Data Entry layout.

FieldStyle

Format

```
FieldStyle(fileName;layoutName;fieldName)
```

Parameters

`fileName` - the name of an open database file (local or remote).

`layoutName` - the name of a layout in the specified database file.

`fieldName` - the name of a field on the specified layout.

Important See "Design functions" on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns the field formatting applied to `fieldName` on `layoutName` in the `fileName` file. If the field has a value list associated with it, the `FieldStyle` function also returns the name of the value list.

- A standard field returns **Standard.**
- A standard field with a vertical scroll bar returns **Scrolling.**
- A drop-down list returns **Popuplist.**
- A pop-up menu returns **Popupmenu.**
- A Checkbox returns **Checkbox.**
- A Radio button returns **RadioButton.**

Example

On the Data Entry layout in the Customers database file, `FieldStyle("Customers";"Data Entry";"Current Customer")` returns **RadioButton Yes/No List** when the Current Customer field is formatted as a radio button and is associated with the value list named Yes/No List.

FieldType

Format

`FieldType(fileName;fieldName)`

Parameters

`fileName` - the name of an open database file (local or remote).

`fieldName` - the name of a field in the specified database file.

Important See "Design functions" on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns information about `fieldName`. Field names must be in the form `tablename::fieldname` to specify a field that exists in a table different from the current table. The result has four values separated by spaces:

- The first value is either Standard, StoredCalc, Summary, UnstoredCalc, or Global.
- The second value is the field type: text, number, date, time, timestamp, or container.
- The third value is Indexed or Unindexed.
- The fourth value is the maximum number of repetitions defined for the field (if the field isn't defined as a repeating field, this value is 1).

Examples

`FieldType("Customers";"Phone Number")` returns **Standard Text Unindexed 3**, when, in the Customers database file, the Phone Number field is defined as a text field that repeats a maximum of 3 times and the storage options are left unchanged. (Most fields are indexed when a find is performed in that field.)

`FieldType("Customers";"Current Balance")` returns **StoredCalc Number Indexed 1**, when, in the Customers database file, the Current Balance field is defined as a stored, numeric calculation field that is indexed.

`FieldType("Customers";"Today's Date")` returns **Global Date Unindexed 1**, when, in the Customers database file, the Today's Date field is defined as a global field of type date. Global fields are never indexed.

GetNextSerialValue

Format

```
GetNextSerialValue(fileName;fieldName)
```

Parameters

`fileName` - the name of an open database file (local or remote).

`fieldName` - the name of the field whose next serial number you want to determine.

Important See “Design functions” on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns the next serial number of `fieldName` in `fileName`. Field names must be fully qualified in the form `tablename::fieldname` to specify a field that exists in a table different from the current table.

Example

`GetNextSerialValue(“Customers”;”CustID”)` returns the next serial number for the CustID field.

LayoutIDs

Format

```
LayoutIDs(fileName)
```

Parameter

`fileName` - the name of an open database file (local or remote).

Important See “Design functions” on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns a list of all layout IDs in `fileName`, separated by carriage returns.

Example

`LayoutIDs(“Customers”)` returns a list of all the layout IDs in the Customers database file.

LayoutNames

Format

`LayoutNames(fileName)`

Parameter

`fileName` - the name of an open database file (local or remote).

Important See “Design functions” on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns a list of the names of all layouts in `fileName`, separated by carriage returns.

Example

`LayoutNames(“Customers”)` returns a list of all the layouts in the Customers database file.

LayoutObjectNames

Format

`LayoutObjectNames(fileName;layoutName)`

Parameter

`fileName` - the name of an open database file (local or remote).

`layoutName` - the name of a layout in the specified database file.

Important See FileMaker Pro Help for information about literal text parameters.

Data type returned

text

Description

Returns a list of the names of all named objects on `layoutName` in `fileName`, separated by carriage returns. Layout objects without object names are not returned.

If `layoutName` isn’t specified, then no object names are returned.

Named tab controls, grouped objects, and portal objects that contain other named objects are followed by a list of those named objects enclosed in angle brackets (<>). The angle brackets are shown even if there are no named objects contained within the named tab controls, grouped objects, or portal objects.

Example

`LayoutObjectNames ("Customers";"Data Entry")` returns a list of named objects in the Customers database file that appear on the Data Entry layout.

RelationInfo

Format

`RelationInfo(fileName;tableName)`

Parameters

`fileName` - the name of an open database file (local or remote).

`tableName` - the name of a table in the specified database file.

Important See FileMaker Pro Help for information about literal text parameters.

Data type returned

text

Description

Returns a list of four values for each relationship directly related to `tableName`. Values in a list are separated by carriage returns, and lists are separated by two carriage returns. For each additional relationship connected to `tableName`, an additional list of four values is output.

The four values are:

- `Source:` the name of the database file that holds `tableName`
- `Table:` the name of the table connected to `tableName`
- `Options:` the options that were set in the right side of the Edit Relationship dialog box when the relationship was defined. This line is blank if the following options are not set; otherwise these options are separated by spaces.
  - Delete, if **Delete related records in this table when a record is deleted in the other table** is selected in the right side of the Edit Relationship dialog box
  - Create, if **Allow creation of records in this table via this relationship** is selected in the right side of the Edit Relationship dialog box
  - Sorted, if **Sort records** is selected in the right side of the Edit Relationship dialog box
- `Relationships:` a list of the defined relationships, one per line. Field names are fully qualified, for example, `TableName::Field Name`.

Example

A database file called Human Resources has three tables: Company, Employees, and Addresses. `Company::Company ID` is connected to `Employees::Company ID`, `Employees::Employee ID` is connected to `Addresses::Employee ID` and `Employees::DateOfHire` is connected to `Addresses::DateMovedIn`.

The relationships have the following criteria:

- You can create records in all tables.
- You cannot delete records in all tables.
- A sort was specified for the Addresses table for the Employees<-->Addresses relationship.

`RelationInfo("Human Resources";"Employees")` returns:

Source: Human Resources

Table: Company

Options: Create

Company::Company ID = Employees::Company ID

Source: Human Resources

Table: Addresses

Options: Create Sorted

Addresses::Employee ID = Employees::Employee ID

Addresses::DateMovedIn >= Employees::DateOfHire

ScriptIDs

Format

`ScriptIDs(fileName)`

Parameter

`fileName` - the name of an open database file (local or remote).

Important See “Design functions” on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns a list of all script IDs in `fileName`, separated by carriage returns.

Example

`ScriptIDs("Customers")` returns a list of all the script IDs in the Customers database file.

ScriptNames

Format

```
ScriptNames(fileName)
```

Parameter

`fileName` - the name of an open database file (local or remote).

Important See "Design functions" on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns a list of the names of all scripts in `fileName`, separated by carriage returns.

Example

`ScriptNames("Customers")` returns a list of all the scripts in the Customers database file.

TableIDs

Format

```
TableIDs(fileName)
```

Parameter

`fileName` - the name of an open database file (local or remote).

Important See "Design functions" on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns a list of all table IDs in `fileName`, separated by carriage returns.

Note Each table ID is unique. Also, the ID is independent of when you create each table: the first table could have the smallest, middle, or largest value.

Example

`TableIDs("University Database")` returns

1065089

1065090

for the University Database database file if two tables have been defined for the file.

TableNames

Format

`TableNames(fileName)`

Parameter

`fileName` - the name of an open database file (local or remote).

Important See "Design functions" on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns a list of all table occurrences in the relationships graph for `fileName`, separated by carriage returns.

Example

`TableNames("University Database")` returns table occurrences

Teachers

Coaches

for the University Database database file if a Teachers table and a Coaches table have been defined for the file.

ValueListIDs

Format

`ValueListIDs(fileName)`

Parameter

`fileName` - the name of an open database file (local or remote).

Important See "Design functions" on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns a list of all value list IDs in `fileName`, separated by carriage returns.

Example

`ValueListIDs("Customers")` returns a list of all the value list IDs in the Customers database file.

ValueListItems

Format

```
ValueListItems(fileName;valuelist)
```

Parameters

`fileName` - the name of an open database file (local or remote).

`valuelist` - the name of a value list in the specified database file.

Important See "Design functions" on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns a list of the values in `valuelist`, separated by carriage returns.

Example

`ValueListItems("Customers";"Code")` returns a list of all the items in the Code value list in the Customers database file.

ValueListNames

Format

```
ValueListNames(fileName)
```

Parameter

`fileName` - the name of an open database file (local or remote).

Important See "Design functions" on page 41 for information about literal text parameters.

Data type returned

text

Description

Returns a list of the names of all value lists in `fileName`, separated by carriage returns.

Example

`ValueListNames("Customers")` returns a list of all the value list names in the Customers database file.

WindowNames

Format

`WindowNames{(fileName)}`

Parameter

`{fileName}` - the name of an open database file (local or remote).

Parameters in curly braces { } are optional.

Data type returned

text

Description

Returns a list of the names of windows that are currently open. Use the optional `fileName` parameter to only return windows that are based on the specified file. The window could be visible, hidden, or minimized. The order of the names in the list matches the current stacking order of the windows. The visible windows are listed first, then the minimized windows, then the hidden windows. If there are no databases or windows open, an empty string is returned.

Note Even if you close a file, it may remain open as a hidden file if the window of any other file is displaying data from that file. (For example, another window may be displaying related data from the file you attempted to close.) FileMaker Pro will close the file when you close all the dependent windows.

Examples

`WindowNames` returns **Customers** and **Invoices** separated by a carriage return when those windows are currently open.

`WindowNames("contacts")` returns a list of windows that are based on the contacts database file.

Chapter 5
External functions

Use external functions to access FileMaker Pro plug-ins. Plug-ins add features to FileMaker Pro. For more information, see FileMaker Pro help.

External functions are only available if FileMaker Pro plug-ins are installed and enabled on your computer. If no FileMaker Pro plug-ins are installed, you see only the generic external function definition in the Specify Calculation dialog box:

External (nameOfFunction; parameter)

Plug-ins written for version 7.0 and later

Each plug-in defines its own functions and parameters. See the documentation that came with the plug-in for each function's usage.

Plug-ins written for version 6.0 and earlier

These plug-ins are still supported and continue to use the External function to access the plug-in's functions. The first parameter is the name of the plug-in function to execute and the second is a parameter that is passed to that function. See the documentation that came with the plug-in for each function's usage.

This function	Does this
External, page 58	Enables access to FileMaker Pro plug-ins written for versions of FileMaker Pro prior to 7.0.

For more information, see FileMaker Pro help.

External

Format

`External(nameOfFunction;parameter)`

Parameters

`nameOfFunction` - the name of the external function

`parameter` - the parameter(s) required by the external function. A parameter is required, even if it's only 0.

Data type returned

Depends on the external function

Description

The External function accesses plug-ins created for versions of FileMaker Pro prior to 7.0 and uses the syntax `External("function name", parameter)`, where `function name` is in quotes and is the name of an external function.

Plug-ins created for FileMaker Pro version 7.0 and later do not use the `External("function name", parameter)` syntax. For more information, see FileMaker Pro Help and the *FileMaker Pro Advanced Development Guide* included with FileMaker Pro Advanced.

Chapter 6
Financial functions

Financial functions calculate financial information, such as net present value and payments. For example, you can calculate the monthly payments required to buy a car at a certain loan rate using the `PMT` function.

Click a function name for details.

This function	Returns
FV, page 60	The future value of an initial investment, based on a constant interest rate and payment amount for the number of periods in months.
NPV, page 60	The net present value of a series of unequal payments made at regular intervals, assuming a fixed rate per interval.
PMT, page 61	The payment required to meet the requirements of the term, interest rate, and principal.
PV, page 62	The present value of a series of equal payments made at regular intervals (periods), assuming a fixed interest rate per interval.

FV

Format

`FV(payment;interestRate;periods)`

Parameters

`payment` - payment to be made per period

`interestRate` - interest rate per period

`periods` - number of periods

Data type returned

number

Description

Returns the future value of an initial investment, based on a constant `interestRate` and `payment` amount for the number of `periods` in months. For example, you can calculate how much you'll earn on an investment in which you pay $50 a month for 60 months at a 6 percent annual interest rate.

Notes

- When `interestRate` is 0, this function returns the result of `payment * periods`.
- The `FV` function doesn't account for the present value of your investment, and it assumes that payment is made at the end of each period.

$$FV = payment * \frac{(1 + interestRate)^{periods} - 1}{interestRate}$$

Examples

`FV(50;.11/12;5 * 12)` returns **3975.90398429...**.

`FV(2000;.12;30) + 5000 * (.12 + 1) ^ 30` returns **632464.97928640...**.

`FV(500;.11/5;60)` returns **61141.65130790...**.

To set the decimal precision of the returned value, enclose the current formulas with the `Round` function. For example, `Round(Current Formula;2)`.

NPV

Format

`NPV(payment;interestRate)`

Parameters

`payment` - a repeating field containing unequal payment amounts, or an expression that returns a reference to one.

`interestRate` - interest rate.

Data type returned

number

Description

Returns the net present value of a series of unequal `payments` made at regular intervals, assuming a fixed `interestRate` per interval. For example, suppose someone borrows money from you and pays you back in unequal amounts over a period of several years. You can calculate the result using the `NPV` function.

$$\text{NPV} = \frac{\text{loan amount}}{1 + \text{interestRate}} + \frac{\text{first payment}}{(1 + \text{interestRate})^2} + \frac{\text{second payment}}{(1 + \text{interestRate})^3} + \ldots + \frac{\text{n}^{\text{th}}\ \text{payment}}{(1 + \text{interestRate})^{n+1}}$$

Examples

`NPV(Loan;.05)` returns **156.91277445...**, when the repeating field, Loan, contains -2000 (the initial payment), 600, 300, 500, 700, and 400. The result (156.91277445...) is the actual profit in today's dollars that will be realized from this transaction.

`NPV(Amounts;.10)` returns **16758.35604870...**, when the repeating field, Amounts, contains -5000 (the initial investment), 10,000, 0, 10,000, and 10,000.

If you want each return value to return 2 decimal places, surround the current formulas with the correct `Round` function: `Round(Current Formula;2)`.

PMT

Format

`PMT(principal;interestRate;term)`

Parameters

`principal` - principal amount.

`interestRate` - interest rate. If the interest rate is annual, divide the rate by 12.

`term` - length of time, expressed in number of months.

Data type returned

number

Description

Returns the payment required to meet the requirements of the `term`, `interestRate`, and `principal` you supply.

$$\text{PMT} = \text{payment} \Big/ \left(\frac{1 - (1 + \text{interestRate})^{-\text{periods}}}{\text{interestRate}} \right)$$

Examples

In the following example, the PMT function calculates payments for purchasing a sports car costing $21,000, at an annual rate of 6.9% over 48 monthly payments.

`PMT(21000;.069/12;48)` returns the payment amount **$501.90**.

`PMT(Cost;.13;Years)` returns a payment amount, based on the purchase value stored in Cost, at a 13 percent rate, over the duration stored in Years.

`"Your payment will be " & PMT(150000;.13/12;Months) & "."` returns **Your payment will be**, followed by the payment amount, based on a total cost of $150,000, at a 13 percent annual percentage rate, over the duration stored in Months.

PV

Format

`PV(payment;interestRate;periods)`

Parameters

`payment` - payment amount to be made per period. Type a negative number for money you pay and a positive number for money you receive.

`interestRate` - interest rate per period.

`periods` - number of periods (intervals between payments).

Data type returned

number

Description

Returns the present value of a series of equal `payments` made at regular intervals (`periods`), assuming a fixed `interestRate` per interval.

$$PV = payment * \frac{1 - (1 + interestRate)^{-periods}}{interestRate}$$

Note When `interestRate` is 0, this function returns the result of `payment * periods`.

Example

Your cousin borrowed $2,000 from you, offering to pay you back $500 a year for five years, for a total of $2,500 at the end of five years. If inflation was 5 percent annually, with the following entry you could find out what those payments are worth with the `PV` function.

`PV(500;.05;5)` returns **2164.73833531...**.

If you want the return value to return two decimal places, enclose the formula with the correct `Round` function: `Round(Current Formula;2)`.

Chapter 7
Get functions

Use Get functions in scripts for error checking and prevention, or to capture information about the status of a database file or elements in it, or an action being performed.

Many Get functions return information that changes on a regular basis. For example, when the Get(CurrentTime) function is placed in a stored calculation field, the time will only update when a new record is created. If the calculation has other fields in it, but the calculation result still returns the current time, then the stored calculation result will only update when those other fields have been modified in the current record. If either of these calculations are unstored, the time will update as needed. For performance reasons, making a calculation field unstored is not always the best idea. Get functions are best used in a script where the status information from a Get function is up to date at the moment that the calculation is run.

To access the list of Get functions, in the Specify Calculation dialog box, choose **View all functions by type** or **View Get functions**. When you **View all functions by name**, you see only Get(flag).

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Click a function name for details.

This function	Returns
Get(AccountName), page 68	The authenticated account name being used for the active database file.
Get(ActiveFieldContents), page 68	The contents of the field containing the cursor.
Get(ActiveFieldName), page 69	The name of the field currently containing the cursor.
Get(ActiveFieldTableName), page 69	The name of the table that contains the active field (the field that currently contains the cursor).
Get(ActiveLayoutObjectName), page 70	The name of the layout object in the calculation's active window (the window that currently contains the cursor).
Get(ActiveModifierKeys), page 71	A number representing the keyboard modifier keys (for example, Shift) that are being pressed.
Get(ActiveRepetitionNumber), page 71	A number representing the current (active) repetition of a repeating field.
Get(ActiveSelectionSize), page 72	A number representing how many characters are selected.
Get(ActiveSelectionStart), page 72	A number representing the starting character of the selected text.
Get(AllowAbortState), page 73	A Boolean value representing the current state of `Allow user abort` script step.
Get(AllowToolbarState), page 73	A Boolean value representing whether toolbars are allowed to be visible.
Get(ApplicationLanguage), page 74	Text representing the current application language (for example, English).

This function	Returns
Get(ApplicationVersion), page 75	Text representing the FileMaker Pro application version.
Get(CalculationRepetitionNumber), page 75	A number representing the repetition of the calculation field that is currently being calculated.
Get(CurrentDate), page 76	The current date according to the system calendar.
Get(CurrentHostTimestamp), page 76	The host's current date and time (to the nearest second) according to the system clock.
Get(CurrentTime), page 77	The current time (to the nearest second) according to the system clock.
Get(CurrentTimestamp), page 78	The current date and time (to the nearest second) according to the system clock.
Get(CustomMenuSetName), page 78	The name of the active custom menu set.
Get(DesktopPath), page 79	The path to the desktop folder for the current user.
Get(DocumentsPath), page 80	The path to the documents folder for the current user.
Get(ErrorCaptureState), page 80	A Boolean value representing the state of `Error capture` script step.
Get(ExtendedPrivileges), page 81	A list of key words for the enabled extended privileges, separated by carriage returns
Get(FileMakerPath), page 81	The path to the folder of the currently running copy of FileMaker Pro.
Get(FileName), page 82	The name of the currently active database file.
Get(FilePath), page 82	The full path indicating the location of the file.
Get(FileSize), page 83	The size (in bytes) of the currently active database file.
Get(FoundCount), page 84	A number that represents the number of records in the current found set.
Get(HighContrastColor), page 84	The name of the current high contrast default color scheme if **Use High Contrast** is selected in the Windows operating system Accessibility Options dialog box.
Get(HighContrastState), page 85	A Boolean value representing the state of the **Use High Contrast** checkbox on the Accessibility Options dialog box.
Get(HostIPAddress), page 85	The IP address of the host machine for the current database.
Get(HostName), page 86	The registered name of the computer that is hosting the database file.
Get(LastError), page 87	A number representing the error, if any, in the execution of the most recently executed script step.
Get(LastMessageChoice), page 93	A number corresponding to the button clicked in an alert message displayed by the Show Custom Dialog script step.
Get(LastODBCError), page 94	A string that shows the error state published by ODBC standards, based on ISO/IEF standards.
Get(LayoutAccess), page 94	A number corresponding to the layout access privileges assigned through the Define Accounts & Privileges dialog box.
Get(LayoutCount), page 95	The total number of layouts in the database file.
Get(LayoutName), page 96	The name of the layout currently displayed.
Get(LayoutNumber), page 96	The number of the layout currently displayed, according to the list in the Set Layout Order dialog box.

This function	Returns
Get(LayoutTableName), page 97	The name of the table that the layout is displaying records from.
Get(LayoutViewState), page 97	Information about how the database file is being viewed.
Get(MultiUserState), page 98	A number representing the current multi-user state of the database file.
Get(NetworkProtocol), page 99	The name of the network protocol that FileMaker Pro is using on this machine.
Get(PageNumber), page 99	A number representing the current page being printed or previewed.
Get(PortalRowNumber), page 100	The number of the currently selected portal row.
Get(PreferencesPath), page 100	The path to the preferences folder for the current user.
Get(PrinterName), page 101	A string identifying the default printer name.
Get(PrivilegeSetName), page 102	The name of the privilege set being used by the current user.
Get(RecordAccess), page 102	A number indicating the access privileges of the current record.
Get(RecordID), page 103	The unique ID number of the current record.
Get(RecordModificationCount), page 104	The total number of times changes to the current record have been committed.
Get(RecordNumber), page 105	The number of the current record in the current found set.
Get(RecordOpenCount), page 105	The total number of open records in the current found set that haven't yet been saved.
Get(RecordOpenState), page 106	A number representing the state of the current record.
Get(RequestCount), page 107	The total number of find requests currently defined for the current table.
Get(RequestOmitState), page 107	A Boolean value representing the state of the **Omit** checkbox in Find mode.
Get(ScreenDepth), page 108	The number of bits needed to represent the color or shade of gray of a pixel on the main screen.
Get(ScreenHeight), page 108	The number of pixels displayed vertically on the screen in which the window of the current file is open.
Get(ScreenWidth), page 109	The number of pixels displayed horizontally on the screen in which the window of the current file is open.
Get(ScriptName), page 109	The name of the script currently running (or paused).
Get(ScriptParameter), page 110	The script parameter passed into the current script.
Get(ScriptResult), page 111	The script result from a performed subscript.
Get(SortState), page 112	A Boolean value representing the current sort state.
Get(StatusAreaState), page 112	A number representing whether the status area is hidden, visible, visible and locked, or hidden and locked.
Get(SystemDrive), page 113	The drive letter (Windows) or the volume name (Mac OS) where the currently running operating system is located.
Get(SystemIPAddress), page 114	The IP addresses of all the machines connected to a NIC (Network Interface Controller) card.
Get(SystemLanguage), page 114	The language currently set on the current system.
Get(SystemNICAddress), page 115	The hardware addresses of all the Network Interface Controller cards connected to the machine.

This function	Returns
Get(SystemPlatform), page 115	A number indicating the current platform.
Get(SystemVersion), page 116	The version of the operating system of the machine on which the function is executed.
Get(TextRulerVisible), page 116	A Boolean value representing whether or not the text ruler is visible.
Get(TotalRecordCount), page 117	The total number of records in the current table.
Get(UserCount), page 117	The number of users who are currently accessing the file.
Get(UserName), page 118	The name of the FileMaker Pro user, as specified in the **General** tab of the Preferences dialog box.
Get(UseSystemFormatsState), page 119	A Boolean value representing the state of the **Use System Formats** menu command.
Get(WindowContentHeight), page 119	A number representing the height, in pixels, of the content area.
Get(WindowContentWidth), page 120	A number representing the width, in pixels, of the content area.
Get(WindowDesktopHeight), page 120	A number representing the height, in pixels, of the desktop space.
Get(WindowDesktopWidth), page 121	A number representing the width, in pixels, of the desktop space.
Get(WindowHeight), page 122	A number representing the height, in pixels, of the current window of the file in which the calculation is defined.
Get(WindowLeft), page 122	A number representing the horizontal distance, in pixels, of the outer edge of the current window relative to the left-most edge of the screen.
Get(WindowMode), page 123	A number representing whether FileMaker Pro is in Browse mode, Find mode, Preview mode, or printing when the function is evaluated.
Get(WindowName), page 123	The name of the current window of the file in which the calculation is defined.
Get(WindowTop), page 124	A number representing the vertical distance, in pixels, of the outer edge of the current window relative to the bottom edge of the menu bar or toolbar.
Get(WindowVisible), page 125	A Boolean value representing whether or not the current window is visible.
Get(WindowWidth), page 125	A number representing the width, in pixels, of the current window of the file in which the calculation is defined.
Get(WindowZoomLevel), page 126	The zoom level of the current window.

Get functions example

This script uses the function `Get(CurrentDate)` to check each record in the found set to see if an account is past due. If an account is past due, the script shows a message and prompts the user to click a button labeled Ignore, Send letter, or Send mail (set up through the Show Custom Dialog script step). The script captures the user's response using `Get(LastMessageChoice)`. Then, based on the user's response, the script performs an action: it cancels the rest of the script, prints a "payment is late" letter, or sends email to the associated account.

```
Enter Browse Mode []
Go to Layout ["LayoutName"]
Go to Record/Request/Page [First]
Loop
  If [DatabaseName::Date < Get(CurrentDate) - 30]
    Show Custom Dialog ["30 or more days late"]
    If [Get(LastMessageChoice) = 1]
      Halt Script
    Else If [Get(LastMessageChoice) = 2]
      Go to Layout ["Late Notice"]
      Print []
    Else
      Send Mail [To: DatabaseName::Client; Subject: "Late Notice";
Message: "Your account is past due."]
    End If
  End If
  Go to Record/Request/Page [Exit after last, Next]
End Loop
Go to Layout [original layout]
```

Get(AccountName)

Format

```
Get(AccountName)
```

Parameter

None

Data type returned

text

Description

For FileMaker authentication, `Get(AccountName)` returns the name of the authenticated account being used by the current user of the database file. If a user is using the default Admin account, `Get(AccountName)` returns **Admin**. If a user is using the FileMaker Pro guest account then **[Guest]** will be returned.

For external server authentication, `Get(AccountName)` returns the name of the authenticated account being used by the current user of the database file, not the group the user belongs to (the group name appears in the **Account** list when you define accounts and privileges in FileMaker Pro). If an individual belongs to more than one group (account), the first group name listed when you **View By Authentication Order** while defining accounts and privileges determines access for the user.

Notes

- If you specify the context for the current calculation, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **Marketing** when Marketing is the name of the account that was used to log in to the database file.

Get(ActiveFieldContents)

Format

```
Get(ActiveFieldContents)
```

Parameter

None

Data type returned

text, number, date, time, timestamp, container

Description

Returns the contents of the field containing the cursor. When the cursor is in a repeating field, returns the contents of the active repetition. The result type of the active field depends upon the data type of the active field and the result type assigned to the `Get(ActiveFieldContents)` calculation function.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **SomeShop** when the cursor is in the Name field, and that field contains the data "SomeShop."

This type of calculation is most useful if used in a script when you want to examine data in different fields as the script proceeds.

Get(ActiveFieldName)

Format

```
Get(ActiveFieldName)
```

Parameter

None

Data type returned

text

Description

Returns the name of the field currently containing the cursor.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **Country**, when the cursor is in the Country field.

Get(ActiveFieldTableName)

Format

```
Get(ActiveFieldTableName)
```

Parameter

None

Data type returned

text

Description

Returns the name of the table that contains the active field (the field that currently contains the cursor). If there is no active field, an empty string is returned.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

There are two fields, `Teachers::Name` and `Coaches::Name`, on the current layout. Creating a script that returns the result of `Get(ActiveFieldTableName)` to a third field will return **Teachers** when the script is performed after clicking in the `Teachers::Name` field, or will return **Coaches** after clicking in the `Coaches::Name` field.

Get(ActiveLayoutObjectName)

Format

`Get(ActiveLayoutObjectName)`

Parameter

None

Data type returned

text

Description

Returns the object name of the active layout object in the calculation's current window. Otherwise returns an empty string.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

There is a named button on the current layout called `cancelButton`. When the cursor is on the button, `Get(ActiveLayoutObjectName)` returns **cancelButton**.

Get(ActiveModifierKeys)

Format

```
Get(ActiveModifierKeys)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the keyboard modifier keys (for example, Control+Shift) that are being pressed. The number is calculated by summing numbers representing each modifier key being pressed. The values assigned to the keys are:

- Shift = 1
- Caps Lock = 2
- Ctrl (Windows) and Control (Mac OS) = 4
- Alt (Windows) and Option (Mac OS) = 8
- ⌘ (Mac OS) = 16

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns the number **9** when Shift+Alt is pressed on a computer running Windows.

You could use this function in a script that includes a custom dialog box script step (with an **OK** and **Cancel** button) to perform some special action if the user presses the Alt (or Option) key while clicking **OK**.

Get(ActiveRepetitionNumber)

Format

```
Get(ActiveRepetitionNumber)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the active repetition of a repeating field (the repetition that currently contains the cursor). The first repetition is 1. If the current field isn't a repeating field, the function returns **1**.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **5** when the cursor is in the fifth repetition of a repeating field.

Get(ActiveSelectionSize)

Format

```
Get(ActiveSelectionSize)
```

Parameter

None

Data type returned

number

Description

Returns a number representing how many characters are selected. Returns **0** if there is no selection.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **4** when 4 characters are selected.

Get(ActiveSelectionStart)

Format

```
Get(ActiveSelectionStart)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the starting character of the selected text. Returns the cursor's current position if no text is selected.

If there are multiple windows open in the current database file, a result is returned for only the foreground window.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **5** when the selection starts at character 5.

Get(AllowAbortState)

Format

```
Get(AllowAbortState)
```

Parameter

None

Data type returned

number

Description

Returns **1** if `Allow user abort` script step is on, otherwise returns **0**.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **1** if `Allow user abort` script step is on.

Get(AllowToolbarState)

Format

```
Get(AllowToolbarState)
```

Parameter

None

Data type returned

number

Description

Returns a Boolean value representing whether toolbars are allowed to be visible. Returns **1** if toolbars are allowed, otherwise returns **0**. The Allow Toolbars script step sets the toolbar state. For more information, see FileMaker Pro help.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **1** if toolbars are allowed to be visible.

Get(ApplicationLanguage)

Format

```
Get(ApplicationLanguage)
```

Parameter

None

Data type returned

text

Description

Returns text representing the current application language. The text that is returned is in the English language.

FileMaker Pro supports:

- English
- French
- Italian
- German
- Swedish
- Spanish
- Dutch
- Japanese

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **English** when the current application language is English.

Get(ApplicationVersion)

Format

```
Get(ApplicationVersion)
```

Parameter

None

Data type returned

text

Description

Returns text representing the FileMaker application and version.

- **Pro (*version*)** for FileMaker Pro.
- **ProAdvanced (*version*)** for FileMaker Pro Advanced.
- **Runtime (*version*)** for FileMaker Runtime.
- **Web (*version*)** for FileMaker Web Client.
- **Server (*version*)** for FileMaker Web Server.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **Pro 8.5v1** in FileMaker Pro 8.5v1.

Get(CalculationRepetitionNumber)

Format

```
Get(CalculationRepetitionNumber)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the repetition of the calculation field that is currently being calculated. The first repetition is 1. If the current field isn't a repeating field, the function returns **1**.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **5** when FileMaker Pro is calculating the fifth repetition of a repeating field.

Get(CurrentDate)

Format

```
Get(CurrentDate)
```

Parameter

None

Data type returned

date

Description

Returns the current date according to the system calendar.

The format of the result varies based on the date format that was in use when the database file was created. In the United States, dates are generally in the format MM/DD/YYYY. You can change the date format in the Regional Settings Control Panel (Windows 2000), the Date and Time Control Panel (Windows XP), or the Date & Time System Preference (Mac OS).

If the result is displayed in a field, it is formatted according to the date format of the field in the current layout.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Example

Returns **2/2/2004** when the system date is set to February 2, 2004.

Get(CurrentHostTimestamp)

Format

```
Get(CurrentHostTimestamp)
```

Parameter

None

Data type returned

timestamp

Description

Returns the host's current date and time according to the system clock, to the nearest second.

The format of the value returned is determined by the database file's settings. You can use your client system's settings by editing the Regional Settings Control Panel (Windows 2000), the Date and Time Control Panel (Windows XP), or the Date & Time System Preference (Mac OS).

Notes

- The client machine and host machine may be in different times zones so `Get(CurrentHostTimestamp)` and `Get(CurrentTimestamp)` may return different date/time values. Also, the current date and time are characteristics of the host system, but the format of the date and time is a characteristic of the database file.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Important For users who are connected over a network, the `Get(CurrentHostTimestamp)` function can affect the performance of the database file. For example, if you use the function in an unstored calculation field, and the field is visible in a list view, each display of the field requires an additional network access. Stored calculation fields are a better use of the function. For example, if you automatically enter a timestamp for each newly created record using a stored calculation field, you minimize network access.

Example

Returns **1/1/2004 11:30:01 AM** when the system clock shows January 1, 2004 11:30:01 AM on the host machine.

Get(CurrentTime)

Format

`Get(CurrentTime)`

Parameter

None

Data type returned

time

Description

Returns the current time according to the system clock, to the nearest second. The format of the value returned is determined by the Regional Settings Control Panel (Windows 2000), the Date and Time Control Panel (Windows XP), or the Date & Time System Preference (Mac OS).

Note In client/server and peer-to-peer environments, `Get(CurrentTimestamp)` evaluates the status of the client machine running the script (not the host machine). See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **11:30:00** when the system clock shows 11:30:00.

Get(CurrentTimestamp)

Format

`Get(CurrentTimestamp)`

Parameter

None

Data type returned

timestamp

Description

Returns the current date and time according to the system clock, to the nearest second. The format of the value returned is determined by the Regional Settings Control Panel (Windows 2000), the Date and Time Control Panel (Windows XP), or the Date & Time System Preference (Mac OS).

Note In client/server and peer-to-peer environments, `Get(CurrentTimestamp)` evaluates the status of the client machine running the script (not the host machine). See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **1/1/2004 11:30:00 AM** when the system clock shows January 1, 2004 11:30:00.

Get(CustomMenuSetName)

Format

`Get(CustomMenuSetName)`

Parameter

None

Data type returned

text

Description

Returns the name of the active custom menu set. If the active menu set isn't a custom menu set, an empty string is returned.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **Custom Menu Set #1** when this custom menu set is active.

Returns an empty string when the **[Standard FileMaker Menus]** menu set is active.

Get(DesktopPath)

Format

```
Get(DesktopPath)
```

Parameter

None

Data type returned

text

Description

Returns the path to the desktop folder for the current user. In Windows, the path format is /Drive:/Documents and Settings/UserName/Desktop/. In the Mac OS, the path format is /DriveName/Users/UserName/Desktop/.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **/C:/Documents and Settings/John Smith/Desktop/** for a user named John Smith in Windows.

Returns **/MacintoshHD/Users/John Smith/Desktop/** for a user named John Smith in the Mac OS.

Get(DocumentsPath)

Format

`Get(DocumentsPath)`

Parameter

None

Data type returned

text

Description

Returns the path to the documents folder for the current user. In Windows, the path format is /Drive:/Documents and Settings/UserName/My Documents/. In the Mac OS, the path format is /DriveName/Users/UserName/Documents/.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **/C:/Documents and Settings/John Smith/My Documents/** for a user named John Smith in Windows.

Returns **/MacintoshHD/Users/John Smith/Documents/** for a user named John Smith in the Mac OS.

Get(ErrorCaptureState)

Format

`Get(ErrorCaptureState)`

Parameter

None

Data type returned

number

Description

Returns **1** if the `Set Error capture` script step is on; otherwise returns **0**.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **1** if the `Set Error capture` script step is on.

Get(ExtendedPrivileges)

Format

```
Get(ExtendedPrivileges)
```

Parameter

None

Data type returned

text

Description

Returns a list of keywords, separated by carriage returns, identifying the extended privileges available to the account being used by the current user of the database file (extended privileges are additional access rights assigned to an account's privilege set). For more information, see FileMaker Pro help.

`Get(ExtendedPrivileges)` returns an empty list if a user doesn't have extended privileges assigned for the current database file.

Notes

- If you specify the context for the current calculation, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Your account uses a privilege set that includes the extended privilege of **Access via Instant Web Publishing** (keyword "fmiwp").

`Position(Get(ExtendedPrivileges); "fmiwp"; 1; 1)` returns a value greater than 0.

Get(FileMakerPath)

Format

```
Get(FileMakerPath)
```

Parameter

None

Data type returned

text

Description

Returns the path to the folder of the currently running copy of FileMaker Pro. In Windows, the path format is /Drive:/Program Files/FileMaker/FileMaker Pro 8.5/. In the Mac OS, the path format is /DriveName/Applications/FileMaker Pro 8.5/.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **/C:/Program Files/FileMaker/FileMaker Pro 8.5/** in Windows.

Returns **/MacintoshHD/Applications/FileMaker Pro 8.5/** in the Mac OS.

Get(FileName)

Format

```
Get(FileName)
```

Parameter

None

Data type returned

text

Description

Returns the name of the currently active database file, without the filename extension.

Notes

- If the current calculation is stored and you specify its context, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **Contacts** when Contacts is the active file.

Get(FilePath)

Format

```
Get(FilePath)
```

Parameter

None

Data type returned

text

Description

Returns the full path indicating the location of the currently active database file. In Windows, the full path is file:/drive:/folder/filename for local files. For remote files, the full path is file://volume/folder/filename. In the Mac OS, the full path is file:/volume/folder/filename for local and remote files.

Notes

- If you specify the context for the current calculation, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **file:/driveletter:/databaseName** for local files in Windows.

Returns **file://volumename/myfoldername/databaseName** for remote files in Windows.

Returns **file:/path/databaseName** for local and remote files in the Mac OS.

Returns **fmnet:/networkaddress/databaseName** for FileMaker Pro networked files.

Get(FileSize)

Format

```
Get(FileSize)
```

Parameter

None

Data type returned

number

Description

Returns the size (in bytes) of the currently active database file.

Notes

- If the current calculation is stored and you specify its context, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **15000** when the current file size is 15000 bytes.

Get(FoundCount)

Format

```
Get(FoundCount)
```

Parameter

None

Data type returned

number

Description

Returns a number that represents the number of records in the current found set.

If there are multiple windows open in the current database file, each window can have its own found count value, but results are returned for only the foreground window.

Notes

- If you specify the context for the current calculation, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **7** when there are 7 records in the current found set.

Get(HighContrastColor)

Format

```
Get(HighContrastColor)
```

Parameter

None

Data type returned

text

Description

Windows: returns the name of the current high contrast default color scheme. Returns an empty value (null) if **Use High Contrast** is unavailable, inactive, or if the function is used on the Mac OS.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns “High Contrast White (large)” when the **Use High Contrast** option in Windows 2000 is active and **Black on white** is selected.

Get(HighContrastState)

Format

```
Get(HighContrastState)
```

Parameter

None

Data type returned

number

Description

Windows: Returns a number representing the state of the **Use High Contrast** option in the Accessibility Options control panel. Returns:

- **0** if **Use High Contrast** is unavailable, inactive, or if the function is used on the Mac OS.
- **1** if **Use High Contrast** is available and active.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Get(HostIPAddress)

Format

```
Get(HostIPAddress)
```

Parameter

None

Data type returned

text

Description

Returns the IP address of the host machine for the current database. If the current database isn't being hosted, an empty string is returned.

Notes

- If the current calculation is stored and you specify its context, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **14.156.13.121** when the current database is being hosted.

Get(HostName)

Format

```
Get(HostName)
```

Parameter

None

Data type returned

text

Description

Returns the registered name of the computer that is hosting the database file.

On the computer that is hosting the database file:

- Windows: Choose **Start** menu > **Control Panels** > **System**, and then click the **Network Identification** tab. **Full computer name** displays the current registered name. Click **Properties** to rename the computer (you must be logged on as an administrator to rename the computer).
- Mac OS: In the Sharing System Preference, **Computer Name** displays the current registered name.

Notes

- If the current calculation is stored and you specify its context, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **Fred Jones** when Fred Jones is the registered name of the host computer in use.

Get(LastError)

Format

```
Get(LastError)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the error, if any, in the execution of the most recently executed script step. Use this function to detect and control the outcome of errors.

Notes

- Mac OS: In FileMaker Pro, if an error occurs while performing an AppleScript from ScriptMaker™, the AppleScript error code will be returned.
- In FileMaker Pro, if an error occurs while performing a SQL query, a SQLSTATE error will be returned by ODBC.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Tip To create a script that responds to errors without displaying alerts, use this function with the Set Error Capture script step with the **On** option.

Examples

Returns **0** when the most recent script step executed successfully.

Returns **401** when no records are found after the Perform Find script step has been executed.

Runtime errors

Error Number	Description
-1	Unknown error
0	No error
1	User canceled action
2	Memory error
3	Command is unavailable (for example, wrong operating system, wrong mode, etc.)
4	Command is unknown
5	Command is invalid (for example, a Set Field script step does not have a calculation specified)
6	File is read-only
7	Running out of memory
8	Empty result
9	Insufficient privileges
10	Requested data is missing
11	Name is not valid
12	Name already exists
13	File or object is in use
14	Out of range
15	Can't divide by zero
16	Operation failed, request retry (for example, a user query)
17	Attempt to convert foreign character set to UTF-16 failed
18	Client must provide account information to proceed
19	String contains characters other than A-Z, a-z, 0-9 (ASCII)
100	File is missing
101	Record is missing
102	Field is missing
103	Relationship is missing
104	Script is missing
105	Layout is missing
106	Table is missing
107	Index is missing
108	Value list is missing
109	Privilege set is missing
110	Related tables are missing
111	Field repetition is invalid
112	Window is missing
113	Function is missing
114	File reference is missing

Error Number	Description
115	Specified menu set is not present
116	Specified layout object is not present
130	Files are damaged or missing and must be reinstalled
131	Language pack files are missing (such as template files)
200	Record access is denied
201	Field cannot be modified
202	Field access is denied
203	No records in file to print, or password doesn't allow print access
204	No access to field(s) in sort order
205	User does not have access privileges to create new records; import will overwrite existing data
206	User does not have password change privileges, or file is not modifiable
207	User does not have sufficient privileges to change database schema, or file is not modifiable
208	Password does not contain enough characters
209	New password must be different from existing one
210	User account is inactive
211	Password has expired
212	Invalid user account and/or password. Please try again
213	User account and/or password does not exist
214	Too many login attempts
215	Administrator privileges cannot be duplicated
216	Guest account cannot be duplicated
217	User does not have sufficient privileges to modify administrator account
300	File is locked or in use
301	Record is in use by another user
302	Table is in use by another user
303	Database schema is in use by another user
304	Layout is in use by another user
306	Record modification ID does not match
400	Find criteria are empty
401	No records match the request
402	Selected field is not a match field for a lookup
403	Exceeding maximum record limit for trial version of FileMaker Pro
404	Sort order is invalid
405	Number of records specified exceeds number of records that can be omitted
406	Replace/Reserialize criteria are invalid
407	One or both match fields are missing (invalid relationship)
408	Specified field has inappropriate data type for this operation

Error Number	Description
409	Import order is invalid
410	Export order is invalid
412	Wrong version of FileMaker Pro used to recover file
413	Specified field has inappropriate field type
414	Layout cannot display the result
415	One or more required related records are not available
500	Date value does not meet validation entry options
501	Time value does not meet validation entry options
502	Number value does not meet validation entry options
503	Value in field is not within the range specified in validation entry options
504	Value in field is not unique as required in validation entry options
505	Value in field is not an existing value in the database file as required in validation entry options
506	Value in field is not listed on the value list specified in validation entry option
507	Value in field failed calculation test of validation entry option
508	Invalid value entered in Find mode
509	Field requires a valid value
510	Related value is empty or unavailable
511	Value in field exceeds maximum number of allowed characters
600	Print error has occurred
601	Combined header and footer exceed one page
602	Body doesn't fit on a page for current column setup
603	Print connection lost
700	File is of the wrong file type for import
706	EPSF file has no preview image
707	Graphic translator cannot be found
708	Can't import the file or need color monitor support to import file
709	QuickTime movie import failed
710	Unable to update QuickTime file reference because the database file is read-only
711	Import translator cannot be found
714	Password privileges do not allow the operation
715	Specified Excel worksheet or named range is missing
716	A SQL query using DELETE, INSERT, or UPDATE is not allowed for ODBC import
717	There is not enough XML/XSL information to proceed with the import or export
718	Error in parsing XML file (from Xerces)
719	Error in transforming XML using XSL (from Xalan)
720	Error when exporting; intended format does not support repeating fields
721	Unknown error occurred in the parser or the transformer
722	Cannot import data into a file that has no fields

Error Number	Description
723	You do not have permission to add records to or modify records in the target table
724	You do not have permission to add records to the target table
725	You do not have permission to modify records in the target table
726	There are more records in the import file than in the target table. Not all records were imported
727	There are more records in the target table than in the import file. Not all records were updated
729	Errors occurred during import. Records could not be imported
730	Unsupported Excel version. (Convert file to Excel 7.0 (Excel 95), Excel 97, 2000, or XP format and try again)
731	The file you are importing from contains no data
732	This file cannot be inserted because it contains other files
733	A table cannot be imported into itself
734	This file type cannot be displayed as a picture
735	This file type cannot be displayed as a picture. It will be inserted and displayed as a file
736	Too much data to export to this format. It will be truncated
800	Unable to create file on disk
801	Unable to create temporary file on System disk
802	Unable to open file
803	File is single user or host cannot be found
804	File cannot be opened as read-only in its current state
805	File is damaged; use Recover command
806	File cannot be opened with this version of FileMaker Pro
807	File is not a FileMaker Pro file or is severely damaged
808	Cannot open file because access privileges are damaged
809	Disk/volume is full
810	Disk/volume is locked
811	Temporary file cannot be opened as FileMaker Pro file
813	Record Synchronization error on network
814	File(s) cannot be opened because maximum number is open
815	Couldn't open lookup file
816	Unable to convert file
817	Unable to open file because it does not belong to this solution
819	Cannot save a local copy of a remote file
820	File is in the process of being closed
821	Host forced a disconnect
822	FMI files not found; reinstall missing files
823	Cannot set file to single-user, guests are connected
824	File is damaged or not a FileMaker file

Error Number	Description
900	General spelling engine error
901	Main spelling dictionary not installed
902	Could not launch the Help system
903	Command cannot be used in a shared file
905	No active field selected; command can only be used if there is an active field
920	Can’t initialize the spelling engine
921	User dictionary cannot be loaded for editing
922	User dictionary cannot be found
923	User dictionary is read-only
951	An unexpected error occurred (*)
954	Unsupported XML grammar (*)
955	No database name (*)
956	Maximum number of database sessions exceeded (*)
957	Conflicting commands (*)
958	Parameter missing (*)
1200	Generic calculation error
1201	Too few parameters in the function
1202	Too many parameters in the function
1203	Unexpected end of calculation
1204	Number, text constant, field name or “(“ expected
1205	Comment is not terminated with "*/"
1206	Text constant must end with a quotation mark
1207	Unbalanced parenthesis
1208	Operator missing, function not found or “(“ not expected
1209	Name (such as field name or layout name) is missing
1210	Plug-in function has already been registered
1211	List usage is not allowed in this function
1212	An operator (for example, +, -, *) is expected here
1213	This variable has already been defined in the Let function
1214	AVERAGE, COUNT, EXTEND, GETREPETITION, MAX, MIN, NPV, STDEV, SUM and GETSUMMARY: expression found where a field alone is needed
1215	This parameter is an invalid Get function parameter
1216	Only Summary fields allowed as first argument in GETSUMMARY
1217	Break field is invalid
1218	Cannot evaluate the number
1219	A field cannot be used in its own formula
1220	Field type must be normal or calculated
1221	Data type must be number, date, time, or timestamp
1222	Calculation cannot be stored

Error Number	Description
1223	The function is not implemented
1224	The function is not defined
1300	The specified name can’t be used
1400	ODBC driver initialization failed; make sure the ODBC drivers are properly installed
1401	Failed to allocate environment (ODBC)
1402	Failed to free environment (ODBC)
1403	Failed to disconnect (ODBC)
1404	Failed to allocate connection (ODBC)
1405	Failed to free connection (ODBC)
1406	Failed check for SQL API (ODBC)
1407	Failed to allocate statement (ODBC)
1408	Extended error (ODBC)

Error codes marked with an asterisk (*) are returned only by web-published databases.

Get(LastMessageChoice)

Format

```
Get(LastMessageChoice)
```

Parameter

None

Data type returned

number

Description

Returns a number corresponding to the button clicked in an alert message that is displayed by the Show Custom Dialog script step.

Returns:

- **1** for the first button (by default, labeled OK)
- **2** for the second button (by default, labeled Cancel)
- **3** for the third button

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Get(LastODBCError)

Format

`Get(LastODBCError)`

Parameter

None

Data type returned

text

Description

Returns a string that shows the ODBC error state (SQLSTATE), as published by ODBC standards, based on ISO/IEF standards.

You can obtain the error state after an ODBC-related script step has been executed to check for known errors and determine if you want to continue with the script. The ODBC error state is cleared before the next ODBC-related script is executed. An error message, based on the error state returned by the ODBC driver, is displayed.

Notes

- You can set the Set Error Capture state to “on” to suppress the error messages. You can also use `Get(LastError)` to get generic errors.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **[DataDirect][Macintosh ODBC Driver Manager] Data source name not found and no default driver specified (-1)** when a data source name wasn’t found and the driver wasn’t specified.

Get(LayoutAccess)

Format

`Get(LayoutAccess)`

Parameter

None

Data type returned

number

Description

Returns a number based on record access privileges available through the current layout. You assign the privileges in the Custom Layout Privileges dialog box.

Returns:

- **0** if the custom layout privileges of an account's privilege set allow **no access** to **Records via this layout**.
- **1** if the custom layout privileges of an account's privilege set allow **view only** access to **Records via this layout**. If the database is opened with read-only access, FileMaker Pro returns **1** even if the layout has read-write access privileges.
- **2** if the custom layout privileges of an account's privilege set allow **modifiable** access to **Records via this layout**.

See FileMaker Pro help for more details about limiting access through layouts.

Notes

- `Get(LayoutAccess)` returns information about record access privileges defined for only the current layout. It ignores current record access privileges for all other layouts. To fully check access through a layout, consider the return values of `Get(LayoutAccess)` and the Get(RecordAccess) function, page 102.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **1** when the layout allows view-only access to records.

Get(LayoutCount)

Format

```
Get(LayoutCount)
```

Parameter

None

Data type returned

number

Description

Returns the total number of layouts in the database file.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **3** when the file has three layouts.

Get(LayoutName)

Format

```
Get(LayoutName)
```

Parameter

None

Data type returned

text

Description

Returns the name of the layout currently displayed.

If there are multiple windows open in the current database file, each window can have its own layout name value, but results are returned for only the foreground window.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **Product List** when the Product List layout is displayed.

Returns **Customer Invoice** when the Customer Invoice layout is displayed.

Get(LayoutNumber)

Format

```
Get(LayoutNumber)
```

Parameter

None

Data type returned

number

Description

Returns the number of the layout currently displayed, according to the list in the Set Layout Order dialog box.

If there are multiple windows open in the current database file, each window can have its own layout number value, but results are returned for only the foreground window.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **3** when the current layout is third in the list of layouts in Set Layout Order.

Get(LayoutTableName)

Format

```
Get(LayoutTableName)
```

Parameter

None

Data type returned

text

Description

Returns the name of the table from which the current layout is displaying records. If no windows are open, an empty string is returned.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

There are two layouts, Teachers Layout and Coaches Layout, with corresponding tables named Teachers and Coaches in the table Instructors. An unstored calculation of `Get(LayoutTableName)` returns Teachers when the current layout is Teachers Layout and returns Coaches when the current layout is Coaches Layout.

Get(LayoutViewState)

Format

```
Get(LayoutViewState)
```

Parameter

None

Data type returned

number

Description

Returns a number indicating the currently active database file view. Returns:

- **0** (zero) if the database file is in View as Form view
- **1** if the database file is in View as List view
- **2** if the database file is in View as Table view

If there are multiple windows open in the current database file, each window can have its own layout view state value, but results are returned for only the foreground window.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Get(MultiUserState)

Format

```
Get(MultiUserState)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the level of sharing for the database file using FileMaker Network.

Returns:

- **0** when network sharing is off.
- **1** when network sharing is on, you're accessing the database file from the host computer, and either all users or a specific group of users (based on their privilege set) have network access to the database file.
- **2** when network sharing is on, you're accessing the database file from a client computer, and either all users or a specific group of users (based on their privilege set) have network access to the database file.

Notes

- If the current calculation is stored and you specify its context, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **0** when access is denied to other users.

Get(NetworkProtocol)

Format

```
Get(NetworkProtocol)
```

Parameter

None

Data type returned

text

Description

Returns the name of the network protocol (TCP/IP) that FileMaker Pro is using on this machine.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **TCP/IP**.

Get(PageNumber)

Format

```
Get(PageNumber)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the current page being printed or previewed. If nothing is being printed or previewed, **0** is returned.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **4** when page 4 is being printed or previewed.

Get(PortalRowNumber)

Format

```
Get(PortalRowNumber)
```

Parameter

None

Data type returned

number

Description

Returns the number of the currently selected portal row. When no portal row is selected, returns **0**. If there are multiple windows open in the current database file, each window can have its own portal row number value, but results are returned for only the foreground window.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **5** when the fifth row of a portal is currently selected, or when the cursor is in a field in the fifth portal row.

Get(PreferencesPath)

Format

```
Get(PreferencesPath)
```

Parameter

None

Data type returned

text

Description

Returns the path to the preferences and default options folder for the current user. In Windows, the path format is /Drive:/Documents and Settings/UserName/Local Settings/Application Data/. In the Mac OS, the path format is /DriveName/Users/UserName/Library/Preferences/.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **/C:/Documents and Settings/John Smith/Local Settings/Application Data/** for a user named John Smith in Windows.

Returns **/MacintoshHD/Users/John Smith/Library/Preferences/** for a user named John Smith in the Mac OS.

Get(PrinterName)

Format

```
Get(PrinterName)
```

Parameter

None

Data type returned

text

Description

In Windows, returns a string with each of these entries separated by a comma:

- the printer name
- the driver name
- the name of the printer port

In Mac OS, returns a string with these entries separated by the word **on**:

- the Queue name of the printer (if provided)
- the IP address of the printer

If any of this information isn't available, **<Unknown>** is inserted in the result (except for Queue name in the Mac OS).

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

For Windows:

Returns **HP LaserJet 4, WINSPOOL, LPT1**.

For Mac OS:

Returns **24.109.265.43**.

Get(PrivilegeSetName)

Format

`Get(PrivilegeSetName)`

Parameter

None

Data type returned

text

Description

Returns the name of the privilege set assigned to the account being used by the current user of the database file. If a user is using the default Admin account and you haven't modified access privileges for the database file, `Get(PrivilegeSetName)` returns **[Full Access]**.

Notes

- If you specify the context for the current calculation, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

For current user Administrator, `Get(PrivilegeSetName)` might return **[Full Access]**.

For a user in the sales department, `Get(PrivilegeSetName)` might return **[Data Entry Only]**.

Get(RecordAccess)

Format

`Get(RecordAccess)`

Parameter

None

Data type returned

number

Description

Returns a number based on the current record's access privileges, assigned through the Custom Record Privileges dialog box.

Returns:

- **0** if the custom record privileges of an account's privilege set have neither **View** nor **Edit** privileges set to **yes** for the current record.
- **1** if the custom record privileges of an account's privilege set have **View** set to **yes** for the current record, or if **View** is set to **limited** and the calculation defined for limited access returns a value of **true**.

  Note If both **View** and **Edit** are set to **yes**, `Get(RecordAccess)` returns **2**.
- **2** if the custom record privileges of an account's privilege set have **Edit** set to **yes** for the current record, or if **Edit** is set to **limited** and the calculation defined for limited access returns a value of **true**.

See FileMaker Pro help for more details about limiting access to records.

Notes

- `Get(RecordAccess)` only returns information about the privileges defined for accessing records. It ignores access privileges assigned through individual layouts. To fully check access to a record, consider the return values of the Get(LayoutAccess) function, page 94, and `Get(RecordAccess)`.
- If you specify the context for the current calculation, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **1** when the record access is view-only.

Get(RecordID)

Format

```
Get(RecordID)
```

Parameter

None

Data type returned

number

Description

Returns the unique ID number of the current record. This number is a decimal value (an integer) generated by FileMaker Pro when the record is created. It does not change.

Notes

- If the current calculation is stored and you specify its context, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns a unique ID for the current record.

Get(RecordModificationCount)

Format

```
Get(RecordModificationCount)
```

Parameter

None

Data type returned

number

Description

Returns the total number of times changes to the current record have been committed. To commit changes, you can, for example:

- click out of all fields (exit the record)
- go to a different record
- enter Find mode

If multiple windows are open, clicking in another window does not commit the record.

Notes

- If the current calculation is stored and you specify its context, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **0** if the record has not been modified since it was created.

If changes are made to four fields and all four fields are committed together, the result increments by one. If changes are made to four fields and each change is committed separately, the result increments by four.

Get(RecordNumber)

Format

```
Get(RecordNumber)
```

Parameter

None

Data type returned

number

Description

Returns the number of the current record in the current found set. This value is determined by the relative place of the record in the found set, and changes depending on the find criteria and the sort order.

Notes

- To return a value that uniquely and permanently identifies a record in this table, use `Get(RecordID)`.
- If you specify the context for the current calculation, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **3** when the current record is the third record in a found set.

Get(RecordOpenCount)

Format

```
Get(RecordOpenCount)
```

Parameter

None

Data type returned

number

Description

Returns the total number of open records in the current found set that haven't been saved.

Notes

- If you specify the context for the current calculation, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **4** if there are four open records in the current found set that haven't been saved.

Get(RecordOpenState)

Format

```
Get(RecordOpenState)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the state of the current record.

Returns:

- **0** for a closed or committed record.
- **1** for a new record that hasn't been committed.
- **2** for a modified record that hasn't been committed.

Notes

- If you specify the context for the current calculation, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **1** if the current record is a new record that hasn't been saved.

Get(RequestCount)

Format

```
Get(RequestCount)
```

Parameter

None

Data type returned

number

Description

Returns the total number of find requests defined for the current table. If there are multiple windows open in the current database file, then results are returned for only the top-most window of the file that the calculation is defined in.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **5** when there are five find requests defined for the current table.

Get(RequestOmitState)

Format

```
Get(RequestOmitState)
```

Parameter

None

Data type returned

number

Description

Returns a Boolean value representing the state of the **Omit** checkbox in Find mode. Returns **1** if the **Omit** checkbox is selected, otherwise returns **0**.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **1** when the **Omit** checkbox is selected in the current find request.

Get(ScreenDepth)

Format

```
Get(ScreenDepth)
```

Parameter

None

Data type returned

number

Description

Returns the number of bits needed to represent the color or shade of gray of a pixel on the main screen. A value of 8 represents 256 (equal to 2^8) colors or shades of gray.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **32** on a display showing millions (2^{32}) of colors.

Returns **16** on a display showing thousands (2^{16}) of colors.

Returns **4** on a VGA display.

Returns **1** on a black-and-white display.

Get(ScreenHeight)

Format

```
Get(ScreenHeight)
```

Parameter

None

Data type returned

number

Description

Returns the number of pixels displayed vertically on the screen in which the window of the current file is open. When the window spans more than one screen, this function uses the screen that contains the largest percentage of the window. If there are multiple windows open in the current database file, each window can have its own screen height value, but results are returned for only the foreground window.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **480** when the screen resolution is set to 640 by 480.

Get(ScreenWidth)

Format

```
Get(ScreenWidth)
```

Parameter

None

Data type returned

number

Description

Returns the number of pixels displayed horizontally on the screen in which the window of the current file is open. When the window spans more than one screen, this function uses the screen that contains the largest percentage of the window. If there are multiple windows open in the current database file, each window can have its own screen width value, but results are returned for only the foreground window.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **640** when the screen resolution is set to 640 by 480.

Get(ScriptName)

Format

```
Get(ScriptName)
```

Parameter

None

Data type returned

text

Description

Returns the name of the script currently running (or paused).

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **Print Report** when the Print Report script is running.

Returns **Update Customer** when the Update Customer script is running.

Get(ScriptParameter)

Format

`Get(ScriptParameter)`

Parameter

None

Data type returned

text

Description

When this function is part of a calculation evaluated within a script, returns the script parameter passed into the script.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **Print** when “Print” was the value of the parameter passed into the current script.

The following example shows how to pass named parameters using the `Evaluate`, `Let`, and `Get(ScriptParameter)` functions, allowing access only to variable '`a`' (the example returns **6**):

```
ScriptParameter = "a = 5; b = 10"
Evaluate("Let ( [" & Get(ScriptParameter) & "]; a + 1 )" )
```

The following example shows how to pass named parameters, allowing access to both variable '`a`' and '`b`'. The simplified first parameter makes the second parameter more complex (the example returns **6, 12**):

```
ScriptParameter = "a = 5; b = 10"
```

```
Evaluate("Let ( [" & Get(ScriptParameter) & "]; a + 1 & \", \" & b
+ 2 )" )
```

The following example shows how to pass named parameters, while keeping the ability to check the syntax of the second parameter of the `Let` function (the example returns **6, 12**):

```
ScriptParameter = "a = 5; b = 10"

Let(  [a = Evaluate("Let( [" & Get(ScriptParameter) & "]; a )"),
       b = Evaluate("Let( [" & Get(ScriptParameter) & "]; b )")];
a + 1 & ", " & b + 2 )
```

Get(ScriptResult)

Format

```
Get(ScriptResult)
```

Parameter

None

Data type returned

text, number, date, time, timestamp, container

Description

When this function is part of a calculation evaluated within a script, returns the script result from a performed subscript. If a subscript doesn't return a result, then the content of the script result will be empty.

Example

In the following example, script Find Customers returns the results of a find request when it is called from script Do Reports. Script Find Customers uses the optional script result of the Exit Script script step. Script Do Reports then uses Get(ScriptResult) to determine what other script steps should be performed based on the returned result stored in Get(ScriptResult).

Find Customers

```
Set Error Capture [On]
Perform Find [Restore]
New Record/Request
Exit Script [Result: Get(FoundCount) < 10]
```

Do Reports

```
Perform Script [Find Customers]
If [Get(ScriptResult) = 0]
        Show Custom Dialog ["You have created 10 records already."]
End If
```

Get(SortState)

Format

```
Get(SortState)
```

Parameter

None

Data type returned

number

Description

Returns **0** if the records in the active table are not sorted.

Returns **1** if the records in the active table are sorted.

Returns **2** if the records in the active table are partially sorted (semi-sorted).

Each window has its own sort state.

Notes

- The records in a sorted table can become semi-sorted if you add a new record, or if you change the contents of a field that was involved in the sorting.
- If you specify the context for the current calculation, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **1** when the records in the active table are sorted.

Get(StatusAreaState)

Format

```
Get(StatusAreaState)
```

Parameter

None

Data type returned

number

Description

Returns a number indicating the current status area state.

Returns:

- **0** (zero) if the status area is hidden
- **1** if the status area is visible
- **2** if the status area is visible and locked
- **3** if the status area is hidden and locked

If there are multiple windows open on the currently active database file, then results are returned for only the active window.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **1**, when the current status area is visible.

Get(SystemDrive)

Format

```
Get(SystemDrive)
```

Parameter

None

Data type returned

text

Description

Returns the drive letter (Windows) or volume name (Mac OS) where the currently running operating system is located.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **/C:/** in Windows when the operating system is on the C: drive.

Returns **/DriveName/** in the Mac OS when the operating system is on a volume named DriveName.

Get(SystemIPAddress)

Format

```
Get(SystemIPAddress)
```

Parameter

None

Data type returned

text

Description

Returns a list of the IP addresses of all the machines connected to a NIC (Network Interface Controller) card. IP addresses are separated by carriage returns.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **14.156.13.121**, for example, when only one machine is connected.

Get(SystemLanguage)

Format

```
Get(SystemLanguage)
```

Parameter

None

Data type returned

text

Description

Returns the language currently set on the current system. The text that is returned is in the English language.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **Japanese** when Japanese is the language currently set on the operating system.

Get(SystemNICAddress)

Format

`Get(SystemNICAddress)`

Parameter

None

Data type returned

text

Description

Returns the hardware address of all the Network Interface Controller cards connected to the machine. The address consists of 6 bytes displayed in hexadecimal separated by colons. In Windows, find this address by typing the command "`ipconfig /All`" in a DOS window. In the Mac OS, find this address under **Network Overview** in the **System Profile** tab under Applications/Utilities/Apple System Profiler.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **00:07:34:4e:c2:0d**, for example.

Get(SystemPlatform)

Format

`Get(SystemPlatform)`

Parameter

None

Data type returned

number

Description

Returns a number indicating the current platform:

- **-1** if the current platform is Mac OS X
- **-2** if the platform is Windows 2000 or Windows XP

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

`Abs(Get(SystemPlatform))` returns **2** when the current platform is a Windows platform.

`Get(SystemPlatform)` returns **-1** when the current platform is Mac OS X.

Get(SystemVersion)

Format

`Get(SystemVersion)`

Parameter

None

Data type returned

text

Description

When this function is used in a script, returns the version of the operating system of the machine of the person running the script.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **5.0** for Windows 2000.

Returns **5.1** for Windows XP.

Returns **10.3** for Mac OS X version 10.3.

Get(TextRulerVisible)

Format

`Get(TextRulerVisible)`

Parameter

None

Data type returned

number

Description

Returns a Boolean value representing whether or not the text ruler is visible. Returns **1** if the text ruler is displayed, otherwise returns **0**.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **1** when the text ruler is visible.

Get(TotalRecordCount)

Format

```
Get(TotalRecordCount)
```

Parameter

None

Data type returned

number

Description

Returns the total number of records in the current table.

Notes

- If the current calculation is stored and you specify its context, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **876** when there are 876 records in the current table.

Get(UserCount)

Format

```
Get(UserCount)
```

Parameter

None

Data type returned

number

Description

Returns the number of clients currently accessing the file.

Returns:

- **1** if FileMaker network sharing is turned off
- **1** + the number of clients if FileMaker network sharing is turned on

This function does not count clients accessing the database file via the web, ODBC or JDBC.

Notes

- If you specify the context for the current calculation, this function will be evaluated based on that context; otherwise, it will be evaluated based on the context of the current window.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **5** when there are 4 clients accessing the database file.

Get(UserName)

Format

```
Get(UserName)
```

Parameter

None

Data type returned

text

Description

Returns the name of the FileMaker Pro user, as specified in the **General** tab of the Preferences dialog box. The returned name is user-specified.

Important For greater security, use `Get(AccountName)` to track and manage user access: a user cannot change the account name used to log in to a database file.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **Sharon Lloyd** when Sharon Lloyd is the current user.

Get(UseSystemFormatsState)

Format

```
Get(UseSystemFormatsState)
```

Parameter

None

Data type returned

number

Description

Returns a Boolean value representing the state of the **Use System Formats** command in the Format menu. Returns **1** if **Use System Formats** is on, otherwise returns **0**.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **1** when **Use System Formats** is on.

Get(WindowContentHeight)

Format

```
Get(WindowContentHeight)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the height, in pixels, of the FileMaker Pro content area. The content area depends on the current size of the active window but doesn't include the title bar, scroll bars, zoom controls, and page margins. The content area is the space inside these controls.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **400** in the Mac OS when the current window height is 437.

The example below combines `Get(WindowContentHeight)` with `Get(WindowHeight)` to determine the size of the title bar and horizontal scroll bar:

`Get(WindowHeight) - Get(WindowContentHeight)` returns **37** in the Mac OS when the window height is 437.

Get(WindowContentWidth)

Format

`Get(WindowContentWidth)`

Parameter

None

Data type returned

number

Description

Returns a number representing the width, in pixels, of the FileMaker Pro content area. The content area depends on the current size of the active window but doesn't include the title bar, scroll bars, zoom controls, or page margins. It does include the status area if it is currently showing. The content area is the space inside these controls.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **400** in the Mac OS when the current window width is 415 and the status area isn't showing.

The example below combines `Get(WindowContentWidth)` with `Get(WindowWidth)` to determine the size of the status bar and vertical scroll bar:

`Get(WindowWidth) - Get(WindowContentWidth)` returns **15** in the Mac OS when the window width is 415 and the status area isn't showing.

Get(WindowDesktopHeight)

Format

`Get(WindowDesktopHeight)`

Parameter

None

Data type returned

number

Description

Returns a number representing the height, in pixels, of the desktop space.

In Windows, the desktop space is the area inside the MDI window (sometimes referred to as the client area). This doesn't include any virtual space available through the scrolling of the MDI window.

In the Mac OS, the desktop space is the area on the main monitor excluding the menu bars and Dock. The main monitor is where the menu bar is located.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **460** in Windows when there is a single monitor and its MDI is set to 500 x 450.

Returns **578** in the Mac OS when there is a single monitor and its resolution is set to 800 x 600.

Get(WindowDesktopWidth)

Format

```
Get(WindowDesktopWidth)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the width, in pixels, of the desktop space.

In Windows, the desktop space is the space inside the MDI window (sometimes referred to as the client area).

In the Mac OS, the desktop space is the area on the main monitor excluding the menu bars and Dock. The main monitor is where the menu bar is located.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **450** in Windows when there is a single monitor and its MDI is set to 500 x 450.

Returns **600** in the Mac OS when there is a single monitor and its resolution is set to 800 x 600.

Get(WindowHeight)

Format

```
Get(WindowHeight)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the height, in pixels, of the window that the script is acting on (not necessarily the foreground window). The height of the window is calculated from the top to bottom outer edges of the window. This position doesn't include shadows or other effects applied to windows.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

`Get(WindowHeight)` returns **300** when the current window's height is 300 pixels.

Get(WindowLeft)

Format

```
Get(WindowLeft)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the horizontal distance, in pixels, of the outer edge of the window that the script is acting on (not necessarily the foreground window) relative to the left-most edge of the screen. The origin of the reference coordinate system is at the left-most corner below the menu bar or toolbar. A negative value indicates the portion of the left side of the window that is hidden.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **52** when the outer edge of the active window is 52 pixels from the left edge of the screen.

Returns **0** when the active window is 0 pixels from the left edge of the screen.

Get(WindowMode)

Format

```
Get(WindowMode)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the mode FileMaker Pro is in at the time the function is evaluated:

- **0** for Browse mode
- **1** for Find mode
- **2** for Preview mode
- **3** if printing is in progress

If a script using this function runs while the file is in Layout mode, FileMaker Pro switches to Browse mode and returns **0**. If there are multiple windows open in the current database file, each window can have its own window mode value, but results are returned for only the foreground window.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **2** if the file is in Preview mode when the function is evaluated.

Get(WindowName)

Format

```
Get(WindowName)
```

Parameter

None

Data type returned

text

Description

Returns the name of the window that the script is acting on (not necessarily the foreground window). Returns an empty string if there is no window.

Notes

- You can set the window name with the Set Window Title script step.
- See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

There are two windows, **Teachers** and **Students,** displaying the same layout that includes an unstored calculation **Calc** containing `Get(WindowName)`. **Teachers** is returned when the Teachers window is refreshed, and **Students** is returned when the Students window is refreshed.

Get(WindowTop)

Format

`Get(WindowTop)`

Parameter

None

Data type returned

number

Description

Returns a number representing the vertical distance, in pixels, of the outer edge of the window that the script is acting on (not necessarily the foreground window) relative to the bottom edge of the menu bar or toolbar. The origin of the reference coordinate system is at the left-most corner below the menu bar or toolbar. A negative value indicates the portion of the top part of the window that is hidden behind the menu bar or toolbar.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **52** when the outer edge of the active window is 52 pixels from the menu bar or toolbar.

Returns **0** when the outer edge of the active window just touches the menu bar or toolbar.

Get(WindowVisible)

Format

```
Get(WindowVisible)
```

Parameter

None

Data type returned

number

Description

Returns a number representing whether or not the current window is visible. The current window is the window that the script is acting on (not necessarily the foreground window). Returns a **1** if the window is visible. Returns a **0** if the window is hidden using the **Hide Window** command. The window can be located outside of the visible screen space and still return **1**.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **1** when the current window is physically visible.

Returns **0** when the current window has been hidden using the FileMaker Pro **Hide Window** command.

Get(WindowWidth)

Format

```
Get(WindowWidth)
```

Parameter

None

Data type returned

number

Description

Returns a number representing the width, in pixels, of the window that the script is acting on (not necessarily the foreground window). The width of the window is calculated from the left-most to right-most outer edge of the window. This position doesn't include shadows or other effects applied to windows.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Example

Returns **300** when the current window is 300 pixels wide.

Get(WindowZoomLevel)

Format

```
Get(WindowZoomLevel)
```

Parameter

None

Data type returned

text

Description

Returns the zoom percentage of the current window.

In Windows, an asterisk appears next to the zoom percentage when **Enlarge window contents to improve readability** is selected in the **General** tab of the Preferences dialog box.

Note See FileMaker Pro help for information about running scripts in client/server and peer-to-peer environments.

Examples

Returns **200** when the current window's zoom percentage is set to 200.

Returns **200*** in Windows when the current window's zoom percentage is set to 200 and **Enlarge window contents to improve readability** is selected.

Chapter 8
Logical functions

Logical functions test for a condition to evaluate it as true or false. This is known as a Boolean value. If the condition is true, FileMaker Pro returns a **1**; if the condition is false, FileMaker Pro returns a **0**. You can use the keywords `True` and `False` with logical functions and operators when a Boolean value is needed. Keyword `True` returns **1** and keyword `False` returns **0**.

Logical functions can also evaluate parameters such as text or arithmetic operations that do not make a true or false statement, or in the case of the `GetField` function, return the contents of another field.

Click a function name for details.

This function	Returns
Case, page 128	One of several possible results based on a series of tests.
Choose, page 128	One result value, according to the integer value of a specified test.
Evaluate, page 129	Evaluates the specified expression as a calculation.
EvaluationError, page 131	An error code, if any, from the specified expression.
GetAsBoolean, page 131	**0** if the specified data has a value of 0 or is empty, otherwise returns **1**.
GetField, page 132	The contents of the referenced field.
GetLayoutObjectAttribute, page 133	The requested layout object attributes from the calculation's active window.
GetNthRecord, page 134	The contents of the referenced field from the requested record number.
If, page 135	One of two possible results depending on the value of the specified test.
IsEmpty, page 136	True(1) if the specified field is empty, if the related field, related table, relationship, or file is missing, or if some other error occurs; otherwise returns False(0).
IsValid, page 137	**0** when a record contains an invalid value because of a data type mismatch (text in a date field, for example).
IsValidExpression, page 137	True(1) if the syntax of the specified expression is correct.
Let, page 138	Sets variable to the result of value for the duration of the specified expression.
Lookup, page 140	The value specified in the `sourceField` parameter using the relationships in the relationships graph.
LookupNext, page 141	The value specified in the `sourceField` parameter using the relationships in the relationships graph.

Case

Format

```
Case(test1;result1{;test2;result2;defaultResult...})
```

Parameters

`test` - any text or numeric expression.

`result` - result corresponding to the expression.

Parameters in curly braces { } are optional.

Data type returned

text, number, date, time, timestamp, container

Description

Returns one of several possible `results` based on a series of `tests`.

The `Case` function evaluates each test expression in order, and when a True expression is found, returns the value specified in `result` for that expression.

You can include a default result at the end of the parameter list. If none of the expressions evaluate to True, the `Case` function returns the value specified for `defaultResult`. If no default result is supplied, the `Case` function returns an "empty" result.

Examples

`Case(Score >= 90;"Excellent";Score > 50;"Satisfactory";"Needs Improvement")` displays **Excellent** when the score is 90 or above, **Satisfactory** when the score is between 50 and 90, and **Needs Improvement** for any other score.

`Case(Shipment Method="Ground";2;Shipment Method="Air";10)` returns **10**, when the Shipment Method field contains Air.

Choose

Format

```
Choose(test;result0{;result1;result2...})
```

Parameters

`test` - Any integer calculation. The calculation result of test must be a number that indexes into the list that follows. Because the index is a 0 based index, the test result must be 0 to access the first result.

`result` - one or more results.

Parameters in curly braces { } are optional.

Data type returned

text, number, date, time, timestamp, container

Description

Returns one `result` value, according to the integer value of `test`. FileMaker Pro evaluates `test` to obtain an index number, which is used to choose the corresponding ordinal result.

Because the `Choose` function is a 0 based list, the first item on the list is indexed 0 and the second item on the list is indexed 1. For example, if test evaluates to 2, then result2 is chosen.

Example

```
Choose(Rating;"Not Applicable";"Good";"Fair";"Poor")
```

Rating is a number field that is empty or holds a value between 1 and 3. If Rating is empty, the `Choose` function returns nothing. If Rating is 1, the result is **Good**. If Rating is 2, the result is **Fair**, and if it is 3, the result is **Poor**.

Evaluate

Format

```
Evaluate(expression{;[field1;field2;field3;...]})
```

Parameters

`expression` - any text expression or text field.

`fields` - a list of fields that this function is dependent on. When these fields are modified, the calculation will update its result.

Parameters in curly braces { } are optional. Notice that the optional field list is enclosed in square brackets [ ].

Data type returned

text, number, date, time, timestamp, container

Description

Evaluates `expression` as a calculation.

The optional `fields` parameter is a list of fields this calculation is dependent on. If a necessary field isn't listed, modifying that dependent field won't update the result of the calculation.

Examples

`Evaluate(TextField)` returns **4** when TextField contains 2 + 2.

`Evaluate("textfield")` returns **2 + 2** when textfield contains 2 + 2.

`Evaluate(GetField("textfield"))` returns **4** when textfield contains 2 + 2.

`Evaluate(TextField;[Amount])` returns **.80** when TextField contains .08 * Amount and the Amount field contains 10.00.

`Evaluate("Let(TaxRate=.05;"& Tax Rate Calculation &")")` returns **.50** when the field Tax Rate Calculation contains SubTotal * TaxRate where SubTotal is a numeric field that contains 10.00.

The following example shows how to pass named parameters using the `Evaluate`, `Let`, and `Get(ScriptParameter)` functions, allowing access only to variable '`a`' (the example returns **6**):

```
ScriptParameter = "a = 5; b = 10"

Evaluate("Let ( [" & Get(ScriptParameter) & "]; a + 1 )")
```

The following example shows how to pass named parameters, allowing access to both variable '`a`' and '`b`'. The simplified first parameter makes the second parameter more complex (the example returns **6, 12**):

```
ScriptParameter = "a = 5; b = 10"

Evaluate("Let ( [" & Get(ScriptParameter) & "]; a + 1 & \", \" & b
+ 2 )")
```

The following example shows how to pass named parameters, while keeping the ability to check the syntax of the second parameter of the `Let` function (the example returns **6, 12**):

```
ScriptParameter = "a = 5; b = 10"

Let(  [a = Evaluate("Let( [" & Get(ScriptParameter) & "]; a )"),
       b = Evaluate("Let( [" & Get(ScriptParameter) & "]; b )")];
a + 1 & ", " & b + 2 )
```

Note The `Evaluate` function evaluates an expression, including field values to be evaluated as a calculation formula. It also allows you to specify field dependencies so that a calculation using the evaluation function can be triggered due to changes in other fields of the same record. This function evaluates user-defined formulas. For example, you can create a formula in the Total field that computes state tax:

```
Evaluate(StateTaxFormula) + ShippingCost
```

where the StateTaxFormula field contains:

```
SubTotal * 1.0875
```

and the SubTotal field contains the subtotal before tax and shipping.

The `Evaluate` function has an optional second parameter, which is a field the calculation is dependent on. When the dependent field contents change, FileMaker Pro re-evaluates the calculation. In the following example, the Total calculation will be re-evaluated when SubTotal changes:

```
Evaluate(StateTaxFormula, SubTotal) + ShippingCost
```

The dependent parameter can also be useful in other cases. For example,

`Evaluate("Get(CurrentTimeStamp)", [FieldB, FieldC])`

will store a timestamp in the calculation field whenever FieldB or FieldC changes.

EvaluationError

Format

`EvaluationError(expression)`

Parameter

`expression` - any calculation expression

Data type returned

number

Description

Returns an error code, if any, from `expression`. There are two types of errors: syntax errors and runtime errors. A syntax error indicates an invalid calculation. A runtime error, such as Field missing or Record missing, occurs when the calculation currently being run is valid but cannot properly execute. See Get(LastError) function, page 87, for a list of error codes and messages.

Note The `EvaluationError` function must enclose the `Evaluate` function to return any syntax errors.

Examples

`EvaluationError(calculationField)` returns **102** (Field Missing) when `calculationField` contains **total + 1** and the field total has been deleted or renamed.

`EvaluationError(Evaluate(calculationField))` returns **1207** (Unbalanced Parenthesis) when `calculationField` contains **abs(-1** with no closing parenthesis.

GetAsBoolean

Format

`GetAsBoolean(data)`

Parameter

`data` - any text, number, date, time, timestamp or container expression, or a field containing text, a number, date, time, timestamp or container.

Data type returned

number

Description

Returns **0** if `data` has a value of 0 or is empty, all other values return **1**.

Examples

`GetAsBoolean("")` returns **0**.

`GetAsBoolean("Some text here.")` returns **0**.

`GetAsBoolean(Container Field)` returns **1** when the field named Container Field contains data, or returns **0** when Container Field is empty.

GetField

Format

`GetField(fieldName)`

Parameter

`fieldName` - any text expression or text field that refers to a field's name

Important See chapter 4, "Design functions" for information about literal text parameters.

Data type returned

text, number, date, time, timestamp, container

Description

Returns the contents of `fieldName`. Use this function to get `fieldName`'s contents, or in any function that uses a field, such as `NPV`, `GetSummary`, `GetRepetition`, or the aggregate functions.

Examples

Assume you have the following fields: Arrow and Target. Arrow contains the text string **Target**, and Target contains the text string **Bullseye**.

- `GetField("Arrow")` returns **Target**. Notice the use of quotation marks around Arrow to indicate the literal string is the `fieldName` parameter.
- `GetField(Arrow)` returns **Bullseye**. Notice the absence of quotation marks to indicate the value stored in the Arrow field is the `fieldName` parameter.

Assume you have the following two fields: FirstName and LastName. FirstName contains the text string **Jane**, and LastName contains the text string **Public**.

- `GetField("FirstName")&" "&GetField("LastName")` returns the text string **Jane Public**.

`GetSummary(GetField("Field1"), GetField("Field" & "2"))` performs a summary on the summary field Field1, using a break field of Field2.

GetLayoutObjectAttribute

Format

`GetLayoutObjectAttribute(objectName;attributeName{;repetition Number})`

Parameters

`objectName` - the name of a named layout object on the current layout

`attributeName` - the name of a supported attribute (see below)

`repetitionNumber` - the repetition number (for repeating fields)

Parameters in curly braces {} are optional.

Data type returned

text

Description

Returns the specified attributes of the layout object given by `objectName` that is currently active in the calculation.

Attributes:

`objectType` - returns the object's type as a text literal, in English. Valid return values are: `field`, `text`, `graphic`, `line`, `rectangle`, `rounded rectangle`, `oval`, `group`, `button group`, `portal`, `tab panel`, `web viewer`, and `unknown`.

`hasFocus` - returns **1** (True) if `objectName` is currently active, otherwise returns **0** (False). Objects that can have the focus are fields, portals, tab panels, and groups. Also returns **1** for a portal when a portal row is selected.

`containsFocus` - returns **1** (True) if `objectName` is currently active or if it contains an active object; otherwise returns **0** (False). Objects that can contain the focus are fields, portals, tab panels, and groups.

`isFrontTabPanel` - returns **1** (True) if the target object is the tab panel that is in front.

The following object coordinates are given in pixels relative to the bottom-left corner of the FileMaker menu bar:

`bounds` - returns a list of numeric values, separated by spaces, that describes the placement of the specified object (left-top to right-bottom).

`left` - returns the left edge coordinate of the specified object.

`right` - returns the right edge coordinate of the specified object.

`top` - returns the top edge coordinate of the specified object.

`bottom` - returns the bottom edge coordinate of the specified object.

`width` - returns a number representing the width (in pixels) of the specified object.

`height` - returns a number representing the height (in pixels) of the specified object.

`rotation` - returns a number representing the rotation (in degrees) of the specified object.

`startPoint,endPoint` - returns a pair of numeric values (horizontal vertical), separated by spaces, that represent the start point or end point of a line object. Other objects will return the top left point for `startPoint` and the bottom right point for `endPoint`.

`source` - returns the source description of the specified object as follows. For:

- web viewers - returns current URL
- fields - returns the fully qualified field name (table name::field name)
- text objects - returns the text (does not return merge fields)
- portals - returns the related table name
- graphics - returns image data such as Container data type

For all other objects, returns an empty string.

`content` - returns the content of the specified object as follows. For:

- web viewers - returns the current content (such as HTML code)
- fields - returns the field data formatted using the specified object's properties
- text objects - returns the text (including text from merge fields)
- graphics - returns image data such as Container data type

For all other objects, returns an empty string.

`enclosingObject` - returns `objectName` of the enclosing layout object. Otherwise, returns an empty string. Only groups, tab panels, and portals can contain other objects.

`containedObjects` - returns a list of named objects contained within `objectName`. Only groups, tab panels, and portals can contain other objects.

Note The `hasFocus`, `containsFocus`, `source`, and `content` attributes behave differently in Instant Web Publishing. For more information, see the *FileMaker Instant Web Publishing Guide*, which is located in the folder where FileMaker Pro is installed.

Examples

`GetLayoutObjectAttribute("CancelButton","objectType")` returns **group**

`GetLayoutObjectAttribute("CancelButton","bounds")` returns **138 24 391 38 0**

GetNthRecord

Format

`GetNthRecord(fieldName;recordNumber)`

Parameters

`fieldName` - any related field or repeating field, or an expression that returns a field or a repeating field.

`recordNumber` - the record number from which you want data.

Data type returned

text, number, date, time, timestamp, container

Description

Returns the contents of `fieldName` from the provided `recordNumber`.

Note The result of GetNthRecord() will not be updated when the record referred to by GetNthRecord() is a record other than the one in which the calculation is currently being evaluated.

GetNthRecord of the current table returns the Nth record of the found set according to how the current table is sorted.

GetNthRecord of a related table returns the Nth record of the related set (relative to the current record), regardless of how the related table (or portal) is sorted.

Examples

`GetNthRecord(First Name;2)` returns the contents of the First Name field for record 2 in the current table.

`GetNthRecord(First Name;Get(RecordNumber)+ 1)` returns the contents of the First Name field for the next record in the current table.

`GetNthRecord(Contacts::First Name;2)` returns the contents of the First Name field for record 2 in the Contacts table.

`GetNthRecord(Contacts::Has Repetitions[2];2)` returns the contents of the second repetition of the Has Repetitions field for record 2 in the Contacts table.

If

Format

`If(test;result1;result2)`

Parameters

`test` - any numeric value or logical expression

`result1` - expression or field name

`result2` - expression or field name

Data type returned

text, number, date, time, timestamp, container

Description

Returns one of two possible results depending on the value of `test`. If `test` is True (any non-zero numeric result), FileMaker Pro returns `result1`. If `test` is False (0), `result2` is returned. `Test` must be an expression that returns either a numeric or Boolean (True, False) result.

Notes

- If you have more than two possible results, consider using the `Case` function.
- By default, if `test` refers to a field that doesn't yet contain a value, the `If` function returns an empty result. To override this functionality, deselect the **Do not evaluate if all referenced fields are empty** checkbox.

Examples

`If(Country = "USA";"US Tech Support";"International Tech Support")` returns **International Tech Support**, if the Country field contains France or Japan. Returns **US Tech Support** if the Country field contains USA.

`If(State ="CA";Subtotal * CA Tax Rate;0)` returns the tax if the purchaser is a resident of California, otherwise returns **0**.

IsEmpty

Format

`IsEmpty(field)`

Parameter

`field` - any field name, text expression, or numeric expression

Data type returned

number

Description

Returns True(1) if `field` is empty, if a related field, related table, relationship, or file is missing, or if some other error occurs; otherwise returns False(0).

Examples

`IsEmpty(OrderNum)` returns **1** if the OrderNum field is empty.

`If(IsEmpty(LastName);"Invalid record";"")` displays **Invalid Record** if the LastName field is blank, but displays nothing if there is an entry in LastName.

`IsEmpty(Payments::DatePaid)` returns **1** if, for example, the Payments table has been moved or renamed.

`IsEmpty("text")` returns **0**.

IsValid

Format

`IsValid(field)`

Parameter

`field` - any field name

Data type returned

number

Description

Returns False (0) when:

- A record contains an invalid value because of a data type mismatch (text in a date field, for example)
- FileMaker Pro cannot locate (temporarily or permanently) the related table in which the referenced field is defined
- A field has been deleted from a related table, and therefore the references to that field in the parent table are invalid

Otherwise it returns **1** (the data is valid).

Examples

`IsValid(Datefield)` returns **0** if there is non-date data in Datefield, for example if text was imported into it.

`IsValid(Amount)` returns **0** if there is only text in the number field Amount.

`IsValid(table::field)` returns **0** if the related table was renamed and the relationship isn't updated with the new filename.

IsValidExpression

Format

`IsValidExpression(expression)`

Parameter

`expression` - any calculation expression

Data type returned

number

Description

Returns **True (1)** if `expression` syntax is correct. Returns **False (0)** if `expression` has a syntax error.

Examples

`IsValidExpression(calculationField)` returns **1** (true) when `calculationField` contains **total + 1**.

`IsValidExpression(calculationField)` returns **0** (false) when `calculationField` contains **abs(-1** with no closing parenthesis.

Let

Format

```
Let({[}var1=expression1{;var2=expression2...]};calculation)
```

Parameters

`var` - any variable name, local variable name, or global variable name (see FileMaker Pro help for guidelines on naming variables)

`expression` - any calculation expression, field, or constant

`calculation` - any calculation expression, field, or constant

Parameters in curly braces { } are optional.

Data type returned

text, number, date, time, timestamp, container

Description

Sets `varX` to the result of `expressionX` for the duration of calculation, until the script exits (local variables), or until the file is closed (global variables). Multiple variables are allowed when using a list syntax that is enclosed in square brackets [ ] and is separated by semicolons. For example:

```
Let([variable=value;variable2=value2];calculation)
```

The $ symbol references a local variable and two $$ symbols reference a global variable. An optional repetition number appears in square brackets [ ] immediately after the variable name. For example:

```
Let([$variable[repetition]=value;$$variable2=value2]{;calculation
} )
```

The Let function sets the variables from left to right. You can use previously defined variables (for example, variables that you defined with the Set Variable script step) to define new variable values, and you can nest one Let function within another. If you use a previously defined variable within a nested Let function, the variable has scope only within the nested function (as if you had defined a completely unique variable). See the City example shown below.

Once defined, local and global variables can be referenced in any calculation within their scope. The scope of global variables is limited to the current file. The scope of local variables is the current script. Local variables defined in a calculation are scoped to the file but are only available when scripts are not running. A local and global variable (or even two local variables in different scripts) can have the same name but they are treated as different variables and store different values.

Examples

`Let(x=5;x*x)` returns **25**.

`Let([x=5;squared=x*x;cubed=squared*x];cubed)` returns **125**.

`Let(City="Paris";Let(City="San Francisco";City&"-")&City)` returns **San Francisco - Paris**.

The following example sets a local variable `counter` at repetition `50` with a value of `120`:

`Let($counter[50]=120;$counter[50]*2)` returns **240**.

The following example shows how to pass named parameters using the `Evaluate`, `Let`, and `Get(ScriptParameter)` functions, allowing access only to variable '`a`' (the example returns **6**):

```
ScriptParameter = "a = 5; b = 10"
Evaluate("Let([" & Get(ScriptParameter) & "]; a+1 )" )
```

The following example shows how to pass named parameters, allowing access to both variable '`a`' and variable '`b`'. The simplified first parameter makes the second parameter more complex (the example returns **6, 12**):

```
ScriptParameter = "a = 5; b = 10"
Evaluate("Let( [" & Get(ScriptParameter) & "]; a+1 & \", \" & b+2
)" )
```

The following example shows how to pass named parameters, while keeping the ability to check the syntax of the second parameter of the `Let` function (the example returns **6, 12**):

```
ScriptParameter = "a = 5; b = 10"
Let([a = Evaluate("Let( [" & Get(ScriptParameter) & "]; a )"),
     b = Evaluate("Let( [" & Get(ScriptParameter) & "]; b )")]; a+1
& ", " & b+2 )
```

Lookup

Format

```
Lookup(sourceField{;failExpression})
```

Parameters

`sourceField` - the field from which the lookup value is taken.

`failExpression` - any expression.

Parameters in curly braces { } are optional.

Data type returned

text, number, date, time, timestamp, container

Description

Returns the contents of `sourceField`, using the relationships in the relationships graph. The result of the optional `failExpression` will be returned if the lookup fails. In order for this function to access the contents of the source field, the tables containing the source field and calculation field need to be related. Calculations using the `Lookup` function won't be forced to be unstored calculations.

Example

There are two tables, People and Company, in a database file containing the data shown below.

People table

CompanyID	Employee
100	John Smith
200	Peter Wong
300	Sally Anderson

Company table

CompanyID	CompanyName	Code
100	Apple	91234
100	Apple	82345
200	FileMaker	95054

The People and Company tables are related using the number field CompanyID. The calculation `CompanyName = Lookup(Company::CompanyName;"Not found")` defined in the People table will return **Apple** for the first record, **FileMaker** for the second record and **Not found** for the third record.

LookupNext

Format

`LookupNext(sourceField;lower/higherFlag)`

Parameters

`sourceField` - the field from which the lookup value is taken.

`lower/higherFlag` - the keywords `lower` or `higher` denote whether the value from the next lower/higher matching record must be taken if the lookup fails.

Data type returned

text, number, date, time, timestamp, container

Description

Returns the value specified in `sourceField` using the relationships in the relationships graph. If the lookup fails, the value from the source field in the next lower or higher matching record will be returned, as specified by `lower/higherFlag`. In order for this function to access the value in `sourceField`, the tables containing the source field and calculation field need to be related. Calculations using the `LookupNext` function won't be forced to be unstored calculations.

Example

There are two tables, People and Company, in a database file containing data as shown below.

People table

CompanyID	Employee
100	John Smith
200	Peter Wong
300	Sally Anderson
377	Mary MacKenzie

Company table

CompanyID	CompanyName	Code
100	Apple	91234
100	Apple	82345
200	FileMaker	95054
300	Motorola	93456
400	Cisco	88123

The People and Company tables are related using the number field CompanyID. The calculation `CompanyName = LookupNext(Company::CompanyName;Higher)` defined in the People table will return **Apple**, **FileMaker**, **Motorola** and **Cisco** for records 1 to 4.

Chapter 9
Number functions

Number functions are used to manipulate numeric data.

Click a function name for details.

This function	Returns
Abs, page 144	The absolute value (a positive number) of a number.
Ceiling, page 144	A number rounded up to the next integer.
Combination, page 145	The number of ways to uniquely choose a specified number of items from a set of a specified size.
Div, page 145	An integer of the specified number divided by the divisor.
Exp, page 146	The value of the constant **e** (the base of the natural logarithm, equal to 2.7182818) raised to the power of a specified number.
Factorial, page 146	The factorial of a specified number stopping at 1, or at a specified number factorial.
Floor, page 147	A number rounded down to the next lower integer.
Int, page 147	The whole number (integer) part of the value you specify, without rounding.
Lg, page 148	The base 2 logarithm of the specified number, which can be any positive value.
Ln, page 149	The base-e (natural) logarithm of the specified number.
Log, page 149	The common logarithm (base 10) of the specified number, which can be any positive value.
Mod, page 150	The remainder after a specified number is divided by divisor.
Random, page 150	A random number between zero and one.
Round, page 151	A number rounded off to the specified precision (number of decimal places).
SetPrecision, page 151	Any math functions contained within the specified expression to the specified digits of precision, if the math function supports extended precision.
Sign, page 152	One of three possible values: **-1** when the specified number is negative, **0** when it's zero, and **1** when it's positive.
Sqrt, page 153	The square root of a number.
Truncate, page 153	A number truncated to the specified precision (number of decimal places), without evaluating the value of the discarded digits.

Abs

Format

`Abs(number)`

Parameter

`number` - any numeric expression or field containing a numeric expression

Data type returned

number, time

Description

Returns the absolute value (a positive number) of `number`. For example, if a negative number appears in a field, the `Abs` function removes the minus sign and changes it to a positive value.

Examples

`Abs(-123)` returns **123**.

`Abs(PriceDifference)` returns the positive value of the number in the PriceDifference field.

`Abs(TargetDate - ActualDate)` returns a positive value for the number of days difference between the values in TargetDate and ActualDate.

Ceiling

Format

`Ceiling(number)`

Parameter

`number` - any numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns `number` rounded up to the next integer.

Examples

`Ceiling(1.25)` returns **2**.

`Ceiling(-1.25)` returns **-1**.

Combination

Format

```
Combination(setSize;numberOfChoices)
```

Parameters

`setSize` - any numeric expression or field containing a non-negative numeric expression.

`numberOfChoices` - any numeric expression or field containing a non-negative numeric expression.

Data type returned

number

Description

Returns the number of ways to uniquely choose `numberOfChoices` items from a set of size `setSize`. The values returned by this function are referred to as combination coefficients. They form Pascal's triangle. This function is useful in statistics, combinatorics, and polynomial expansions.

$$\text{Combination} = \frac{\text{Factorial(setSize, numberOfChoices)}}{\text{Factorial(numberOfChoices)}}$$

Example

`Combination(5;2)` returns **10** for a set consisting of {a, b, c, d, e} because the unique choices when choosing two at a time are {ab, ac, ad, ae, bc, bd, be, cd, ce, de}.

`(13 * 12 * Combination(4;2) * Combination(4;3)) / Combination(52;5)` returns **0.00144057...**, which is the probability of being dealt a full-house in 5-card poker (less than a 1% chance).

Div

Format

```
Div(number;divisor)
```

Parameters

`number` - any numeric expression or field containing a numeric expression

`divisor` - any numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns the next lowest integer value after dividing `number` by `divisor`. The `Div` function is equivalent to `Floor(number/divisor)`.

Examples

`Div(2.5;2)` returns **1**.

`Div(-2.5;2)` returns **-2**.

Exp

Format

`Exp(number)`

Parameter

`number` - any numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns the value of the constant **e** (the base of the natural logarithm, equal to 2.7182818) raised to the power of `number`. The `Exp` function is the inverse of the `Ln` function.

Examples

`Exp(1)` returns **2.71828182...**.

`Exp(Ln(2))` returns **2**.

`Exp(0)` returns **1**.

Factorial

Format

`Factorial(number{;numberOfFactors})`

Parameters

`number` - numeric expression or field containing a positive integer.

`numberOfFactors` - any numeric expression or field containing a number that represents how many factors to include in the multiplication.

Parameters in curly braces { } are optional.

Data type returned

number

Description

Returns the factorial of `number` stopping at 1, or stopping at the optional `numberOfFactors`. Useful in statistics and combinatorics.

Where `n = number` and `i = numberOfFactors`:

$$\text{Factorial}(n) = n(n-1)(n-2)\ldots(1)$$

$$\text{Factorial}(n;i) = n(n-1)(n-2)\ldots(n-i+1)$$

Examples

`Factorial(3)` returns **6**, which = 3 * 2 * 1.

`Factorial(10;3)` returns **720**, which = 10 * 9 * 8.

Floor

Format

```
Floor(number)
```

Parameter

`number` - any numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns `number` rounded down to the next lower integer.

Examples

`Floor(1.25)` returns **1**.

`Floor(-1.25)` returns **-2**.

Int

Format

```
Int(number)
```

Parameter

`number` - any numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns the whole number (integer) part of `number` without rounding. It drops any digits to the right of the decimal point, depending on the number you specify.

Examples

`Int(1.45)` returns **1**.

`Int(123.987)` returns **123**.

`Int(Players/3)` returns **4**, if Players contains **13**.

Lg

Format

`Lg(number)`

Parameter

`number` - any numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns the base 2 logarithm of `number`, which can be any positive value. Negative values return an error. For 0, the `Lg` function returns nothing because these values are out of the acceptable range.

$$\mathrm{Lg} = \frac{\mathrm{Ln(number)}}{\mathrm{Ln(2)}}$$

Examples

`Lg(1)` **= 0**

`Lg(2)` **= 1**

`Lg(32)` **= 5**

Ln

Format

`Ln(number)`

Parameter

`number` - any numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns the base-e (natural) logarithm of `number`. The `Exp` function is the inverse of the `Ln` function. Negative values return an error. For 0, the `Ln` function returns nothing because these values are out of the acceptable range.

Examples

`Ln(2.7182818)` returns **.99999998...**.

`Ln(Exp(5))` returns **5**.

Log

Format

`Log(number)`

Parameter

`number` - any positive numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns the common logarithm (base 10) of `number`, which can be any positive value. Negative values return an error. For 0, the `Log` function returns nothing because these values are out of the acceptable range.

$$\text{Log} = \frac{\text{Ln(number)}}{\text{Ln(10)}}$$

Examples

`Log(1)` returns **0**.

`Log(100)` returns **2**.

Mod

Format

`Mod(number;divisor)`

Parameters

`number` - any numeric expression or field containing a numeric expression

`divisor` - numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns the remainder after `number` is divided by `divisor`.

Use the `Mod` function to test whether a number is even or odd by specifying a divisor of 2 (if the result is zero the number is even, otherwise it's odd).

Mod = number – (Div(number;divisor) • divisor)

Examples

`Mod(13;4)` returns **1**.

`Mod(7;5)` returns **2**.

`Mod(7;-5)` returns **-3**.

`Mod(-7;5)` returns **3**.

`Mod(-7;-5)` returns **-2**.

`Mod(Participants;TeamSize)` returns **4** if Participants contains **40** and TeamSize contains **9**.

`If(Mod(Get(RecordNumber);2) = 0;"even";"odd")` labels a record even or odd using the `Get(RecordNumber)` function.

Random

Format

Random

Parameter

None

Data type returned

number

Description

Returns a random number between zero and one. FileMaker Pro generates a new random number when you:

- insert the `Random` function into a formula
- cause a formula containing the `Random` function to be reevaluated (by changing data in any of the fields the formula uses)
- display or access a calculation field defined to have an unstored result.

Example

```
NumDice + NumSides * Random
```

Round

Format

```
Round(number;precision)
```

Parameters

`number` - any numeric expression or field containing a numeric expression

`precision` - any numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns `number` rounded off to the specified `precision` (number of decimal places). If you round a negative number of decimal places, all digits to the right of the decimal point are dropped, and the number is rounded to the nearest tens, hundreds, and so on. The `Round` function always rounds up at 0.5.

Examples

`Round(123.456;2)` returns **123.46**.

`Round(14.5;0)` returns **15**.

`Round(29343.98;-3)` returns **29000**.

`Round(123.456;-1)` returns **120**.

SetPrecision

Format

```
SetPrecision(expression;precision)
```

Parameters

`expression` - any numeric expression

`precision` - any number or numeric expression

Data type returned

number

Description

Computes any math functions contained within `expression` that support extended precision to `precision` decimal places (up to 400). All functions except the trigonometric functions support extended precision. This function doesn't perform a truncation: constant numbers are left at the precision in which they were entered.

Examples

`SetPrecision(5/9;30)` returns **0.555555555555555555555555555556**.

`SetPrecision(If(field1>5;Exp(50);Average(5/9;1/7;5/7));25)` returns either

5184705528587072464087.45332293348538482746910 06 if field1 > **5**, or

0.4708994708994708994708995 if field1 <= **5**.

Sign

Format

`Sign(number)`

Parameter

`number` - any numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns one of three possible values: **-1** when `number` is negative, **0** when it's zero, and **1** when it's positive.

Examples

`Sign(15.12)` returns **1**.

`Sign(-175)` returns **-1**.

`Sign(BalanceDue)` returns **0**, if BalanceDue is a number field containing **0**.

Sqrt

Format

`Sqrt(number)`

Parameter

`number` - any positive number, numeric expression, or field containing a numeric expression.

Data type returned

number

Description

Calculates the square root of `number`.

$$\text{Sqrt} = \sqrt{\text{number}}$$

Examples

`Sqrt(4)` returns **2**.

`Sqrt(SquareFeet)` returns **6** if the SquareFeet number field contains **36**.

Truncate

Format

`Truncate(number;precision)`

Parameters

`number` - any numeric expression or field containing a numeric expression

`precision` - any numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns `number` truncated to the specified `precision` (number of decimal places), without evaluating the value of discarded digits. Use the `Round` function to round up or down to the required precision.

Examples

`Truncate(123.456;2)` returns **123.45**.

`Truncate(-14.6;0)` returns **-14**.

`Truncate(29343.98;-3)` returns **29000**.

`Truncate(123.456;4)` returns **123.456**.

`Truncate(29343.98;5)` returns **29343.98**.

Chapter 10
Repeating functions

Repeating functions perform calculations on repeating fields.

Click a function name for details.

This function	Returns
Extend, page 156	In a calculation involving both repeating and non-repeating fields, allows a value in a non-repeating field to be used with every repetition in a repeating field.
GetRepetition, page 156	The contents of the specified repetition of a repeating field.
Last, page 157	The last valid, non-blank value in the specified field.

Extend

Format

```
Extend(non-repeatingField)
```

Parameter

`non-repeatingField` - any non-repeating field (a field defined to contain only one value), or an expression that returns a reference to one.

Data type returned

text, number, date, time, timestamp, container

Description

Allows a value in `non-repeatingField` to be used with every repetition in a repeating field. Use the `Extend` function with calculations involving both repeating and non-repeating fields. Without the `Extend` function, the value in `non-repeatingField` is used only with the first repetition in the repeating field.

Examples

`Extend(TaxRate) * Quantity * ItemPrice` returns **1.197**, **.6606**, and **1.497** when `TaxRate` contains **.06**; the repeating field Quantity contains **1**, **3**, and **5**; and the repeating field ItemPrice contains **19.95**, **3.67**, and **4.99**.

`Item Count * Extend(if(Company Size > 100; Reduced Price; Price))` returns $1250, $500, and $750 when `Reduced Price` contains $50; the repeating field `Item Count` contains 25, 10, and 15; and `Company Size` is greater than 100. If `Company Size` is less than 100 and `Price` contains $100, this calculation returns $2500, $1000, and $1500.

GetRepetition

Format

```
GetRepetition(repeatingField;number)
```

Parameters

`repeatingField` - any repeating field, or an expression that returns a reference to a repeating field.

`number` - the field repetition number.

Data type returned

text, number, date, time, timestamp, container

Description

Returns the contents of the repeating field specified by `number`.

Examples

ParcelBids is a field defined to repeat with ten values and contains the values **2500**, **1200**, and **1500**.

`GetRepetition(ParcelBids;2)` returns **1200**.

`GetRepetition(if(IsEmpty(ParcelBids) ≠ true, ParcelBids, HouseBids);2)` returns 1200.

`GetRepetition(ParcelBids;5)` returns nothing.

Note You can also find the contents of a particular repetition in a repeating field using square brackets [ ] as array operators. For example, `ParcelBids[2]` returns **1200**. See FileMaker Pro help.

Last

Format

`Last(field)`

Parameter

`field` - any repeating field or related field, or an expression that returns a reference to a repeating field or related field.

Data type returned

text, number, date, time, timestamp, container

Description

Returns the last valid, non-blank value in `field`. If `field` specifies a repeating field then it returns the last non-blank repetition. If `field` specifies a related field, then it returns the last non-blank value in the related set.

Note The last related value will depend on the way related records are sorted. If the related records are not sorted, then the `Last` function returns a value based on the creation order of the records.

Examples

`Last(ParcelBids)` returns **1500** if ParcelBids is a number field defined to repeat with ten values and contains the values **2500**, **1200**, and **1500**.

`Last(Payments::PaymentDate)` returns the payment date in the last matching record in the Payments table.

`Last(if(IsEmpty(Company);PersonalPhone;WorkPhone))` returns the last non-empty phone number from the repeating field PersonalPhone when the Company field is empty. If the Company field is not empty, the function returns the last non-empty phone number from the repeating field WorkPhone.

Chapter 11
Summary functions

Summary functions produce a summary of all records in the found set, or subsummary values for records in different groups. Formulas can contain more than one summary function. Summary functions calculate more slowly than other functions because they generate values for a range of records.

An alternate way to generate similar calculated results is to use Aggregate functions to summarize data in related records (whether or not they appear in a portal). See chapter 2, “Aggregate functions” and information about summarizing data in portals.

Click the function name for details.

This function	Returns
GetSummary, page 160	The value of the summary field for the current range of records when the database file is sorted by the break field.

GetSummary

Format

`GetSummary(summaryField;breakField)`

Parameters

`summaryField` - field of type summary, or an expression that returns a reference to one.

`breakField` - field, or an expression that returns a reference to one. To calculate a grand summary value, use the same summary field for both the summary field and the break field parameters.

The GetSummary function must be set up in the same table as the break field.

Data type returned

number, date, time, timestamp

Description

Returns the value of `summaryField` for the current range of records when the database file is sorted by `breakField`. This produces subsummary values. If the database file isn't sorted by the break field, the result is blank.

When a summary field is also used as the break field, returns the summary field value for the entire found set of records (a grand summary value).

Use the `GetSummary` function to capture summary values when you want to:

- Use summary values in a calculation
- Display subsummary values in Browse mode or in a body part

Calculations using the `GetSummary` function are unstored.

Note You can get similar results using a self-join relationship and "Aggregate functions" on page 17. For more information, see FileMaker Pro help.

Examples

`GetSummary(Total Sales;Country)` returns a summary of all records pertaining to the value in the Country field.

`GetSummary(Total Sales, if(Number of Countries > 1, Country, Sales Zone))` returns a summary of Total Sales by Country if Number of Countries is greater than 1. Otherwise, it returns a summary of Total Sales by Sales Zone.

`GetSummary(Total Sales;Total Sales)` produces a summary of all records (similar to using a summary field, which is a total of total sales).

`If(ThisCharge > 3 * GetSummary(AvgCharge;Customer), "Verify this charge", " ")` displays **Verify this charge** if the current charge is greater than three times the average charge.

Chapter 12
Text functions

Text functions can be used to analyze, rearrange, extract, and build text strings. For example, you could use the `MiddleWords` function to extract specific words from supplied text.

Text functions operate on these parameters:

- fields of type text
- text constants (in quotes)
- expressions having a text result

Click a function name for details.

This function	Returns
Exact, page 163	**1** (True) for an exact match, or **0** (False) for a mismatch between two text strings or container fields.
Filter, page 164	Only the specified characters, in the order that they were originally entered in the text.
FilterValues, page 164	Only the specified values, in the order that they were originally entered in the text.
GetAsCSS, page 165	The specified text, converted to the CSS (Cascading Style Sheets) format.
GetAsDate, page 166	Dates in the specified text as field type date, for use in formulas involving dates or date functions.
GetAsNumber, page 166	Numbers in the specified text as field type number, for use with formulas involving numbers or numeric functions.
GetAsSVG, page 167	The specified text, converted to the SVG (Scalable Vector Graphics) format.
GetAsText, page 168	The specified number, date, time or timestamp as field type text, for use with formulas involving text or text functions.
GetAsTime, page 168	Times or timestamps in the specified text as field type time, for use with formulas involving the time or timestamp functions.
GetAsTimestamp, page 169	The specified data as field type timestamp, for use with formulas involving timestamps.
GetAsURLEncoded, page 169	The specified text, converted with URL (Uniform Resource Locators) encoding.
GetValue, page 170	A specific value from a list of values.
Hiragana, page 171	Hiragana converted from Katakana (hankaku and zenkaku).
KanaHankaku, page 171	Hankaku Katakana converted from Zenkaku Katakana.
KanaZenkaku, page 172	Zenkaku Katakana converted from Hankaku Katakana.

This function	Returns
KanjiNumeral, page 172	Kanji numerals converted from Arabic numerals.
Katakana, page 172	Zenkaku Katakana converted from Hiragana.
Left, page 173	The specified number of characters in the text, counting from the left.
LeftValues, page 173	The specified number of values in the text, counting from the left.
LeftWords, page 174	The specified number of words in the text, counting from the left.
Length, page 175	The number of characters in the specified text, including all spaces, numbers, and special characters.
Lower, page 175	All letters in the specified text as lowercase.
Middle, page 176	The specified number of characters in the text, starting at a specified character position.
MiddleValues, page 176	The specified number of values in the text, starting with a specified value.
MiddleWords, page 177	The specified number of words in the text, starting with a specified word.
NumToJText, page 178	Roman numbers converted from Japanese text.
PatternCount, page 179	The number of occurrences of a search string in the specified text.
Position, page 179	The specified occurrence of a search string, starting from a specified position.
Proper, page 180	The first letter of each word in the specified text as uppercase, and all other letters as lowercase.
Quote, page 181	The specified text surrounded by quotation marks (“ ”).
Replace, page 181	A new string of characters consisting of the specified text as modified by the specified replacement text.
Right, page 182	The specified number of characters in the text, counting from the right.
RightValues, page 182	The specified number of values in the text, counting from the right.
RightWords, page 183	The specified number of words in the text, counting from the right.
RomanHankaku, page 184	Hankaku (alphanumeric & symbols) converted from Zenkaku (alphanumeric & symbols).
RomanZenkaku, page 184	Zenkaku (alphanumeric & symbols) converted from Hankaku (alphanumeric & symbols).
SerialIncrement, page 185	The combined text and numbers in a specified value, with the numbers incremented by the specified amount.
Substitute, page 186	A text string with every occurrence of a specified search string in the text replaced by a specified replacement string.
Trim, page 186	Text stripped of all leading and trailing spaces.
TrimAll, page 187	Text with full width spaces between non-Roman and Roman characters removed.
Upper, page 188	All letters in the specified text as uppercase.

This function	Returns
ValueCount, page 189	A count of the total number of values in the specified text.
WordCount, page 189	A count of the total number of words in the specified text.

Exact

Format

`Exact(originalText;comparisonText)`

Parameters

`originalText` - any text expression, text field, or container field

`comparisonText` - any text expression, text field, or container field

Data type returned

number

Description

Compares the contents of any two fields. For text to match exactly, the uppercase and lowercase usage must be the same. If the fields match, the result is **1** (True); otherwise the result is **0** (False). For container fields, the data must be stored in the same manner (either embedded, or stored by file reference).

Note When evaluating values, text attributes such as font, styles, and sizes are not considered.

Tip If case isn't important, use the `Lower` or `Upper` function on both parameters to process data before checking for an exact match.

Examples

`Exact("McDonald";"McDonald")` returns **1** (True).

`Exact("McDonald";"MCDONALD")` returns **0** (False).

`Exact(Upper("McDonald");Upper("MCDONALD"))` returns **1** (True).

`Exact("John";"John ")` returns **0** (False).

`Exact(BillTo;ShipTo)` returns **1** (True) when the value in BillTo is the same as the value in ShipTo.

`Exact(Recipient;Upper(Recipient))` returns **1** (True), when Recipient contains "JOHNSON"

`Exact(Country;"Spain")` returns 1 (True) when the Country field contains **Spain**.

Filter

Format

```
Filter(textToFilter;filterText)
```

Parameters

`textToFilter` - any text expression or text field

`filterText` - the characters to preserve in the specified text

Data type returned

text

Description

Returns from `textToFilter` only those characters specified in `filterText`, in the order that they were originally entered in `textToFilter`. If `filterText` doesn't have any characters, an empty string is returned. The `Filter` function is case-sensitive.

Examples

`Filter("(408)555-1212";"0123456789")` returns **4085551212**.

`Filter("AaBb";"AB")` returns **AB**.

The following example removes all text from the provided data, then formats the remaining numbers in the preferred phone number formatting:

```
Let(phone = filter(theField;"0123456789");"(" & left(phone;3) &
")" & middle(phone;4;3) & "-" & middle(phone;7;4))
```

If `theField` contains **Work: 408.555.1212** this calculation returns **(408)555-1212**.

FilterValues

Format

```
FilterValues(textToFilter; filterValues)
```

Parameters

`textToFilter` - any text expression or text field

`filterValues` - values that you want to preserve in the specified text

Important See chapter 4, "Design functions" for information about literal text parameters.

Data type returned

text

Description

Returns a text result containing only the characters that were provided in `filterValues`, in the order that they were originally entered in `textToFilter`. If `filterValues` doesn't have any characters, an empty string is returned.

Values are text items separated by carriage returns. A value can be empty, a single character, a word, a sentence, or a paragraph. When you press Enter or Return, you start creating a new value. The last value will be recognized with or without a carriage return.

When the `textToFilter` or the `filterValues` parameter is a literal string, you must insert a paragraph character (¶) between each item in the string. To insert a carriage return character, click the ¶ button in the Specify Calculation dialog box.

Examples

`FilterValues("Plaid¶Canvas¶Suitcase";"Plaid¶Canvas")` returns

Plaid

Canvas

`FilterValues(ValueListItems("Database";"Sizes");"Medium¶Small")` returns

Small

Medium

when a database file named Database has a value list Sizes that contains `Small¶Medium¶Large`.

GetAsCSS

Format

`GetAsCSS(text)`

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Returns `text`, converted to the CSS (Cascading Style Sheets) format, an Internet text format similar to HTML. CSS supports more text formats than HTML, so CSS will represent what you have typed more accurately.

Example

`GetAsCSS(text)` returns the example result shown below when the field text contains the word “Frank” and the word Frank has the following text attributes: Font = Helvetica, Font Size = 12 points, Font Color = red, Font Style = bold.

Example result:

<SPAN STYLE = “font-family: ‘Helvetica’;font-size: 12px;color:

#FF0000;font-weight: bold;text-align: left;”>Frank</SPAN>

GetAsDate

Format

`GetAsDate(text)`

Parameter

`text` - any text expression or text field containing text in the same format as the date on the system where the file was created.

Data type returned

date

Description

Returns dates in `text` as data type date, for use in formulas involving dates or date functions. The format of `text` date must be the same as the date format on the system where the file was created.

Use the `GetAsDate` or `Date` function to enter a date constant into a formula.

Note If the function returns a number instead of a date, go to the Specify Calculation dialog box and make sure the **Calculation result is** date.

Important To avoid errors when using dates, always use four-digit years. For more information about how FileMaker Pro handles two-digit dates, see FileMaker Pro help.

Example

`GetAsDate(“03/03/2005”)` returns **3/3/2005**. You can perform date operations on this result.

GetAsNumber

Format

`GetAsNumber(text)`

Parameter

`text` - any text expression or text field containing numbers

Data type returned

number

Description

Returns only the numbers in `text`, as data type number, for use with formulas involving numbers or numeric functions. The `GetAsNumber` function drops all non-numeric characters from `text`.

Examples

`GetAsNumber("FY98")` returns **98**.

`GetAsNumber("$1,254.50")` returns **1254.5**.

`GetAsNumber("2 + 2")` returns **22**.

`GetAsNumber(SerialNumber)` returns **35684**, when the value of SerialNumber is TKV35FRG6HH84.

GetAsSVG

Format

`GetAsSVG(text)`

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Returns `text`, converted to the SVG (Scalable Vector Graphics) format, an Internet text format similar to HTML or CSS. SVG supports more text formats than HTML, so SVG will represent what you have typed more accurately.

Example

`GetAsSVG(text)` returns the example result (below) when the field text contains the word "Frank" and the word Frank has the following text attributes: Font = Helvetica, Font Size = 12 points, Font Color = red, Font Style = bold.

Example result:

<StyleList>

<Style#0>"font-family: 'Helvetica';font-size: 12px;color:

#FF0000;font-weight: bold;text-align: left;",

Begin: 1, End: 5</Style>

</StyleList>

<Data>

<Span style=”0”>Frank</Span>

</Data>

GetAsText

Format

`GetAsText(data)`

Parameter

`data` - any number, date, time or timestamp expression, or a field containing a number, date, time, timestamp, or container.

Data type returned

text

Description

Returns `data` as data type text, for use with formulas involving text or text functions. `data` can be data type number, date, time, timestamp, or container.

For a container field, `GetAsText` returns external path information, text (when the container contains text that does not resolve into a valid path), or a question mark (?) if the container data is embedded in the database.

Examples

`GetAsText(45)` returns **45**.

`"You are " & GetAsText(DaysDelinquent) & " days late."` returns **You are 3 days late.** when the value of DaysDelinquent is 3.

`"FY" & GetAsText(FiscalYear)` returns **FY98**, if the FiscalYear number field contains 98.

GetAsTime

Format

`GetAsTime(text)`

Parameter

`text` - any text expression or text field containing a time

Data type returned

time

Description

Returns times or timestamps in `text` as data type time, for use with formulas involving the `Time` or `Timestamp` functions. The format of the supplied time must be the same as the time format on the system where the file was created.

Use the `GetAsTime` or the `Time` function to enter a time constant into a formula.

Examples

`GetAsTime("02:47:35")` returns **2:47:35** when you select time as the calculation result. You can perform time calculations on this result.

`GetAsTime("02:47:35")` returns **1/1/0001 2:47:35** when you select timestamp as the calculation result.

`Abs(GetAsTime("12:15 pm") - CheckOut)` returns **3:00:00** when the CheckOut time field contains 3:15 PM.

GetAsTimestamp

Format

```
GetAsTimestamp(text)
```

Parameter

`text` - any text expression, or text, number, date, or time field

Data type returned

timestamp

Description

Returns `text` as data type timestamp, for use with formulas involving timestamps. Text strings must be in the form of a date followed by a time. A number is considered to be the number of seconds since 1/1/0001. There are 86400 seconds in each day.

Examples

`GetAsTimestamp("4/5/2005 4:05:06")` returns **4/5/2005 4:05:06 AM**.

`GetAsTimestamp(50000)` returns **1/1/0001 1:53:20 PM**.

GetAsURLEncoded

Format

```
GetAsURLEncoded(text)
```

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Returns `text` as URL (Uniform Resource Locator) encoding, for use as a URL. Removes all styles from `text`.

All characters are first converted to UTF-8 format. Characters that are neither letters nor digits, or digits that are in the upper ASCII range, are converted to %HH format (a percent sign followed by the character's hexadecimal value).

See the following website for more information on URL encoding:

http://www.w3.org

Examples

`GetAsURLEncoded("Hello")` returns **Hello**

`GetAsURLEncoded("San Francisco")` returns **San%20Francisco**

`GetAsURLEncoded("français")` returns **fran%c3%a7ais**

GetValue

Format

`GetValue(listOfValues;valueNumber)`

Parameter

`listOfValues` - a list of carriage return-delimited values

`valueNumber` - the value to return from the list

Data type returned

text

Description

Returns the requested value given by `valueNumber` from `listOfValues`. Useful in looping scripts or recursive custom calculations.

Values are text items separated by carriage returns. You can place several values together to create a carriage return-delimited list of values. A value can be empty, a single character, a word, a sentence, or a paragraph. When you press Enter or Return, you start creating a new value. The last value will be recognized with or without a carriage return.

When the `listOfValues` parameter is a literal string, you must insert a literal carriage return character (¶) between each item in the string. To insert a literal carriage return character, click the ¶ button in the Specify Calculation dialog box.

Example

`GetValue("London¶Paris¶Hong Kong";2)` returns

Paris

Hiragana

Format

`Hiragana(text)`

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Converts Katakana (hankaku and zenkaku) in `text` to Hiragana.

Example

`Hiragana("アイウエオ")` returns あいうえお

KanaHankaku

Format

`KanaHankaku(text)`

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Converts Zenkaku Katakana to Hankaku Katakana.

Example

`KanaHankaku("データベース")` returns ﾃﾞｰﾀﾍﾞｰｽ

KanaZenkaku

Format

`KanaZenkaku(text)`

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Converts Hankaku Katakana to Zenkaku Katakana.

Example

`KanaZenkaku("ﾃﾞｰﾀﾍﾞｰｽ")` returns データベース

KanjiNumeral

Format

`KanjiNumeral(text)`

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Converts Arabic numerals to Kanji numeral.

Examples

`KanjiNumeral(123)` returns 一二三

`KanjiNumeral("富士見台２の３の２５")` returns 富士見台二の三の二五

Katakana

Format

`Katakana(text)`

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Converts from Hiragana to Zenkaku Katakana.

Example

`Katakana("あいうえお")` returns アイウエオ

Left

Format

```
Left(text;numberOfCharacters)
```

Parameters

`text` - any text expression or text field

`numberOfCharacters` - any numeric expression or field containing a number

Data type returned

text

Description

Returns the `numberOfCharacters` in `text`, counting from the left.

Examples

`Left("Manufacturing";4)` returns **Manu**.

`Left(Name;Position(Name;" ";1;1))` returns **Sophie**, when the Name field contains Sophie Tang.

`Left(PostalCode;3) & Upper(Left(LastName;4))` returns **481JOHN** when the PostalCode field contains 48187 and LastName contains Johnson.

LeftValues

Format

```
LeftValues(text;numberOfValues)
```

Parameters

`text` - any text expression or text field

`numberOfValues` - any numeric expression or field containing a number

Important See chapter 4, “Design functions” for information about literal text parameters.

Data type returned

text

Description

Returns a text result containing the specified `numberOfValues` from the list of values in `text`, counting from the left.

Values are text items separated by carriage returns. A value can be empty, a single character, a word, a sentence, or a paragraph. When you press Return you start creating a new value. The last value will be recognized with or without a carriage return.

Each returned value ends with a carriage return, allowing lists to be easily concatenated.

Examples

`LeftValues("Plaid¶Canvas¶Suitcase";2)` returns

Plaid

Canvas

`LeftValues(list;1)` returns

Sophie

when the text being evaluated contains

Sophie

Bill

LeftWords

Format

`LeftWords(text;numberOfWords)`

Parameters

`text` - any text expression or text field

`numberOfWords` - any numeric expression or field containing a number

Data type returned

text

Description

Returns a text result containing the `numberOfWords` in `text`, counting from the left.

Note The ampersand (&) and hyphen (-) characters identify the beginning of a new word.

Examples

`LeftWords("Plaid Canvas Suitcase";2)` returns **Plaid Canvas**.

`LeftWords(Name;1)` returns **Sophie**, when the Name field contains Sophie Tang.

Length

Format

`Length(field)`

Parameter

`field` - any text, number, date, time, timestamp, or container field, or any text expression or numeric expression

Data type returned

number

Description

Returns the number of characters in `field`, including all spaces, numbers, and special characters. For a container field, `Length` returns the total stored size of objects in bytes.

Examples

`Length("John")` returns **4**.

`Length(Description)` returns **12** when the value in Description is Modem for PC.

`Length("M1" & Left(Product;5))` returns **7**, when the Product field contains Canvas Backpack.

Lower

Format

`Lower(text)`

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Returns all letters in `text` as lowercase.

Examples

`Lower("ABCD")` returns **abcd**.

`Lower(Course)` returns **history**, when the Course field contains History.

`Lower("YOUR BILL IS OVERDUE")` returns **your bill is overdue**.

Middle

Format

`Middle(text;start;numberOfCharacters)`

Parameters

`text` - any text expression or text field

`start` - any numeric expression or field containing a number

`numberOfCharacters` - any numeric expression or field containing a number

Data type returned

text

Description

Extracts the `numberOfCharacters` from `text`, starting at the character position specified by `start`.

Examples

`Middle("(408)555-9054";2;3)` returns **408**.

`Middle(PhoneNumber;2;3)` returns **408** when the PhoneNumber field contains (408) 555-9054.

`Middle("abcdefghij";5;2)` returns **ef**.

`Middle(Name;Position(Name;" ";1;1)+1;3)` returns **Smi**, when the text field Name contains John Smith.

MiddleValues

Format

`MiddleValues(text;startingValue;numberOfValues)`

Parameters

`text` - any text expression or text field

`startingValue` - any numeric expression or field containing a number

`numberOfValues` - any numeric expression or field containing a number

Important See chapter 4, “Design functions” for information about literal text parameters.

Data type returned

text

Description

Returns a text result containing the specified `numberOfValues` in `text`, starting with `startingValue`.

Values are text items separated by carriage returns. A value can be empty, a single character, a word, a sentence or a paragraph. When you press Return you start creating a new value. The last value will be recognized with or without a carriage return.

Each value that is returned ends with a carriage return, allowing lists to be easily concatenated.

Examples

`MiddleValues("Plaid¶Canvas¶Suitcase";2;1)` returns

Canvas

`MiddleValues(list;2;2)` returns

Bill

John

when the list field contains

Sophie

Bill

John

MiddleWords

Format

```
MiddleWords(text;startingWord;numberOfWords)
```

Parameters

`text` - any text expression or text field

`startingWord` - any numeric expression or field containing a number

`numberOfWords` - any numeric expression or field containing a number

Data type returned

text

Description

Returns a text result containing the `numberOfWords` from `text`, beginning at `startingWord`.

Note The ampersand (&) and hyphen (-) characters identify the beginning of a new word.

Examples

`MiddleWords("Plaid Canvas Suitcase";2;2)` returns **Canvas Suitcase**.

`MiddleWords(Name;1;2)` returns **Brigitte Erika**, when the Name field contains Brigitte Erika Durand.

NumToJText

Format

`NumToJText(number;separator;characterType)`

Parameters

`number` - any numeric expression or field containing a number

`separator` - a number from 0 - 3 representing a separator

`characterType` - a number from 0 - 3 representing a type

Data type returned

text

Description

Converts Roman numbers in `number` to Japanese text. If the value for `separator` and `characterType` are blank or other than 0 to 3, then 0 is used.

Separator:

0 - no separator

1 - every 3 digits (thousands)

2 - ten thousands(万) and millions(億) unit

3 - tens(十), hundreds(百), thousands(千), ten thousands(万) and millions(億) unit

Type:

0 - half width (Hankaku) number

1 - full width (Zenkaku) number

2 - Kanji character number 一二三

3 - Traditional-old-style Kanji character number 壱弐参

Examples

`NumToJText(123456789;2;0)` returns 1億2345万6789

`NumToJText(123456789;3;2)` returns 一億二千三百四十五万六千七百八十九

PatternCount

Format

```
PatternCount(text;searchString)
```

Parameters

`text` - any text expression or text field

`searchString` - any text expression or text field representing the set of characters you want to find

Data type returned

number

Description

Returns the number of occurrences of `searchString` in `text`.

Examples

`PatternCount("Mississippi";"is")` returns **2**.

`PatternCount("Mississippi";"issi")` returns **1** (the function isn't inclusive).

`PatternCount(Attending;"Guest")` returns **1** if the Guest checkbox is one of the items selected in the Attending field.

Position

Format

```
Position(text;searchString;start;occurrence)
```

Parameters

`text` - any text expression or text field

`searchString` - any text expression or text field representing the set of characters you want to find.

`start` - any numeric expression, or field containing a number, representing the number of characters from the start of the text string at which to begin the search.

occurrence - any numeric expression or field containing a number, representing which instance of the text string you want to find. A negative occurrence value causes the scan to go in the opposite direction from start. A zero value for occurrence is invalid and returns a result of zero.

Data type returned

number

Description

Returns the starting position of the specified occurrence of searchString in text. If searchString isn't contained in text or if there was no specified occurrence, zero is returned. The Position function is not case-sensitive.

Examples

Position("Mississippi";"iss";1;1) returns **2**.

Position("Mississippi";"iss";1;2) returns **5**.

Position("Mississippi";"iss";3;1) returns **5**.

Left(Name;Position(Name;" ";1;1)-1) returns **William**, when Name is a text field that contains William Smith.

Right(Name;Length(Name) - Position(Name;" ";Length(Name);-1)) returns **Smith**.

Proper

Format

Proper(text)

Parameter

text - any text expression or text field

Data type returned

text

Description

Returns the first letter of each word in text as uppercase and all other letters as lowercase.

Examples

Proper("ABCD") returns **Abcd**.

Proper(Name) returns **Yumiko Kitagawa**, when the Name field contains YUMIKO KITAGAWA.

Quote

Format

`Quote(text)`

Parameter

`text` - any text expression or field

Data type returned

text

Description

Returns the text form of `text` enclosed in quotation marks. Special characters within `text` are escaped appropriately. This function protects text from being evaluated by the `Evaluate` function.

Examples

`Quote("hello")` returns **"hello"**

`Quote("abc\¶")` returns **"abc\¶"**

`Quote("say \"hello\" fred")` returns **"say \"hello\" fred"**

`Evaluate(Quote("1 + 2"))` returns **1 + 2**

`Evaluate("1 + 2&" & Quote(" - 1 + 2"))` returns **3 - 1 + 2**

Replace

Format

`Replace(text;start;numberOfCharacters;replacementText)`

Parameters

`text` - any text expression or text field

`start` - any numeric expression or field containing a number representing the starting position in `text`.

`numberOfCharacters` - any numeric expression or field containing a number representing the number of characters to remove from text.

`replacementText` - any text expression or field containing the text to replace in the original string.

Data type returned

text

Description

Replaces a string of characters in `text` with `replacementText`. Character replacement in `text` begins at the `start` character position and continues for `numberOfCharacters` characters. Compare to the `Substitute` function.

Examples

`Replace("1234567";5;1;"X")` returns **1234X67**.

`Replace("1234567";5;1;"XX")` returns **1234XX67**.

`Replace("1234567";5;2;"X")` returns **1234X7**.

`Replace("William";3;4;"NEW TEXT")` returns **WiNEW TEXTm**.

`Replace(PhoneNumber;1;3;"415")` returns **415-555-9054**, when the PhoneNumber field contains 408-555-9054.

Right

Format

`Right(text;numberOfCharacters)`

Parameters

`text` - any text expression or text field

`numberOfCharacters` - any numeric expression or field containing a number

Data type returned

text

Description

Returns the specified `numberOfCharacters` in `text`, counting from the right.

Examples

`Right("Manufacturing";4)` returns **ring**.

`Right(Name;Length(Name) - Position(Name;" ";1;1))` returns **Cannon**, when the Name field contains Michelle Cannon.

`Right(SerialNumber;3) & Upper(Left(LastName;4))` returns **187FERR** when the SerialNumber text field contains 00-48-187 and LastName contains Ferrini.

RightValues

Format

`RightValues(text;numberOfValues)`

Parameters

`text` - any text expression or text field

`numberOfValues` - any numeric expression or field containing a number

Important See chapter 4, “Design functions” for information about literal text parameters.

Data type returned

text

Description

Returns a text result containing the specified `numberOfValues` in `text` starting from the right.

Values are text items separated by carriage returns. You can place several items together to create a carriage return-delimited list of values. A value can be empty, a single character, a word, a sentence, or a paragraph. When you press Return you start creating a new value. The last value will be recognized with or without a carriage return.

When the `text` parameter is a literal string as in the example below, you must insert a literal carriage return character between each item in the list. In the Specify Calculation dialog box, click the ¶ button to insert a literal carriage return character.

Each value that is returned ends with a carriage return, allowing lists to be easily concatenated.

Examples

`RightValues(“Plaid¶Canvas¶Suitcase”;2)` returns

Canvas

Suitcase

`RightValues(names;1)` returns

John

when the names field contains

Sophie

Bill

John

RightWords

Format

`RightWords(text;numberOfWords)`

Parameters

`text` - any text expression or text field

`numberOfWords` - any numeric expression or field containing a number

Data type returned

text

Description

Returns a text result containing the `numberOfWords` in `text`, counting from the right.

Note The ampersand (&) and hyphen (-) characters identify the beginning of a new word.

Examples

`RightWords("Plaid Canvas Suitcase";2)` returns **Canvas Suitcase**.

`RightWords(Name;1)` returns **Virtanen**, when the Name field contains Matti Virtanen.

RomanHankaku

Format

`RomanHankaku(text)`

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Converts from Zenkaku alphanumeric and symbols to Hankaku alphanumeric and symbols.

Example

`RomanHankaku(`“M a c i n t o s h”) returns **Macintosh**

RomanZenkaku

Format

`RomanZenkaku(text)`

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Converts from Hankaku alphanumeric and symbols to Zenkaku alphanumeric and symbols.

Examples

`RomanZenkaku(`“Macintosh”) returns **M a c i n t o s h**

SerialIncrement

Format

`SerialIncrement(text;incrementBy)`

Parameters

`text` - any text that also contains a number

`incrementBy` - any numeric expression to increment the text by

Data type returned

text

Description

Returns the combined text and numbers specified by `text`, with the numbers in `text` incremented by the specified amount.

The text in `text` isn’t removed, as normally happens when performing standard math against a value that contains text.

If the `incrementBy` value is a decimal number, then only the integer portion of `incrementBy` value is added to the last number in `text`. Any character other than a number is considered a separator. You can use both positive and negative `incrementBy` values.

Examples

`SerialIncrement(“abc12”;1)` returns **abc13**.

`SerialIncrement(“abc12”;7)` returns **abc19**.

`SerialIncrement(“abc12”;-1)` returns **abc11**.

`SerialIncrement(“abc12”;1.2)` returns **abc13**.

`SerialIncrement(“abc1.2”;1.2)` returns **abc1.3**.

In the example below any character other than a number is considered as a separator and the number on the far right is incremented.

`SerialIncrement(“abc123;999”;1)` returns **abc123;1000**.

Substitute

Format

```
Substitute(text;searchString;replaceString)
```

Parameters

`text` - any text expression or text field

`searchString` - any text expression or text field

`replaceString` - any text expression or text field

Data type returned

text

Description

Returns a text string with every occurrence of `searchString` in `text` replaced by `replaceString` in `text`.

The `Substitute` function is case-sensitive. Compare to the `Replace` function.

Multiple substitutions are allowed when you enclose each pair of `searchString` and `replaceString` parameters within square brackets [ ] and separate them with semicolons. Each search and replace list item is also separated by semicolons. For example:

```
Substitute(text; [search1; replace1]; [search2; replace2]; ...
[searchN; replaceN])
```

Examples

`Substitute(Description;"WYSIWYG.";"What you see is what you get")` replaces every occurrence of the acronym "WYSIWYG." in the Description field with the phrase **What you see is what you get**.

`Substitute(text;["a";"A"];["b";"B"])` replaces every lowercase a or b with **A** or **B**.

Trim

Format

```
Trim(text)
```

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Returns `text` stripped of all leading and trailing spaces.

Tip Use the `Trim` function to remove unneeded spaces when you convert files from other programs or systems that require a fixed number of characters per field, or to remove spaces accidentally typed during data entry.

Examples

`Trim(" Tom ")` returns **Tom**.

`Trim(Middle("00230013 William 1234";9;9))` returns **William**.

TrimAll

Format

```
TrimAll(text;trimSpaces;trimType)
```

Parameters

`text` - any text expression or text field

`trimSpaces` - 0 or False, 1 or True

`trimType` - 0 through 3 depending on the trim style that you wish to use

Data type returned

text

Description

Returns a copy of `text` with all leading and trailing spaces removed.

Set `trimSpaces` to True (1) if you want to include the removal of full-width spaces between non-Roman and Roman characters. Set `trimSpaces` to False (0) if you do not.

A character is considered Roman if its unicode value is less than U+2F00. Any character whose unicode value is greater than or equal to U+2F00 is considered non-Roman.

Characters within the Roman range are those belonging to the following character blocks: Latin, Latin-1 Supplement, Latin Extended-A & B, IPA Extensions, Spacing Modifier Letters, Combining Diacritical Marks, Greek, Cyrillic, Armenian, Hebrew, Arabic, Devanagari, Bengali, Gurmukhi, Gujarati, Oriya, Tamil, Telugu, Kannada, Malayalam, Thai, Lao, Tibetan, Georgian, Hangul Jamo, and additional Latin and Greek extended blocks.

Symbols within the Roman range include punctuation characters, superscripts, subscripts, currency symbols, combining marks for symbols, letter-like symbols, number forms, arrows, math operators, control pictures, geometric shapes, dingbats, and so on.

Characters within the non-Roman range are those belonging to the CJK symbols/ punctuations area, Hiragana, Katakana, Bopomofo, Hangul compatibility Jamo, Kanbun, CJK unified ideographs, and so on.

Spaces are removed or inserted depending on the value of `trimType`, as given in the following tables:

This trimType value	Does this
0	Removes all spaces between non-Roman and Roman characters (always leave one space between Roman words).
1	Always includes a half-width space between non-Roman and Roman characters (always leave one space between Roman words).
2	Removes spaces between non-Roman characters (reduce multiple space between non-Roman and Roman words to 1 space; do not add spaces if there are none; always leave one space between Roman words).
3	Removes all spaces everywhere.

In all cases, spaces between non-Roman characters are removed.

Type	Non-Roman - Non-Roman	Non-Roman - Roman	Roman - Roman
0	Remove	Remove	1 space
1	Remove	1 space*	1 space
2	Remove	1 space	1 space
3	Remove	Remove	Remove

* = insert space between non-Roman and Roman text if there isn't one.

Examples

TrimAll(名前,1,0) returns 山田太郎 if the value of 名前 field is 山田　太郎

TrimAll(ファイルメーカーPro　は高品質",1,0) returns ファイルメーカーProは高品質

Upper

Format

`Upper(text)`

Parameter

`text` - any text expression or text field

Data type returned

text

Description

Returns all letters in `text` as uppercase. Use the `Upper` function to ensure consistent data entry of such things as state abbreviations or postal codes.

Examples

`Upper("Ca")` returns **CA**.

`Upper("12n34p")` returns **12N34P**.

ValueCount

Format

```
ValueCount(text)
```

Parameter

`text` - any text expression or text field

Important See chapter 4, "Design functions" for information about literal text parameters.

Data type returned

number

Description

Returns a count of the total number of values in `text`.

Values are text items separated by carriage returns. You can place several items together to create a carriage-return-delimited list of values. A value can be empty, a single character, a word, a sentence, or a paragraph. When you press Return you start creating a new value. The last value will be recognized with or without a carriage return.

When the `text` parameter is a literal string as in the example below, you must insert a literal carriage return character between each item in the list. In the Specify Calculation dialog box, click the ¶ button to insert a literal carriage return character.

Examples

`ValueCount("Item 1¶Item 2¶Item 3")` returns **3**.

`ValueCount(ValueListItems("Employees";"Employee Names")` returns the total number of values in the Employee Names value list in the Employees database file.

WordCount

Format

```
WordCount(text)
```

Parameter

`text` - any text expression or text field

Data type returned

number

Description

Returns a count of the total number of words in `text`.

Examples

`WordCount("The sun is rising.")` returns **4**.

`WordCount(Letter)` returns the total number of words in the Letter field.

Note The ampersand (&) and hyphen (-) characters identify the beginning of a new word.

Chapter 13
Text formatting functions

Text formatting functions can be used to change the color, font, size, and style of the specified text. For example, you could use the `TextFont` function to change the font of the specified text from Arial to Courier.

Text formatting functions operate on these parameters:

- fields of type text
- text constants (in quotes)
- expressions having a text result

Click a function name for details.

This function	Returns
RGB, page 192	A number obtained by combining the red, green, and blue values to represent a color.
TextColor, page 192	The color of text to the color specified by the `RGB` function.
TextColorRemove, page 193	Text with the font colors reverted to the default font color for the field.
TextFont, page 194	Text in the specified font and character set.
TextFontRemove, page 195	Text with the fonts reverted to the default font for the field.
TextFormatRemove, page 196	Text with the formatting reverted to the default text format for the field.
TextSize, page 197	Text in the specified font size.
TextSizeRemove, page 197	Text with the font sizes reverted to the default font size for the field.
TextStyleAdd, page 198	Text with the specified styles added in a single action.
TextStyleRemove, page 199	Text with the specified styles removed in a single action.

RGB

Format

`RGB(red;green;blue)`

Parameters

`red` - any numeric expression or numeric field containing a value ranging from 0 to 255

`green` - any numeric expression or numeric field containing a value ranging from 0 to 255

`blue` - any numeric expression or numeric field containing a value ranging from 0 to 255

Data type returned

number

Description

Returns an integer number from 0 to 16777215 obtained by combining the `red`, `green`, and `blue` values (each ranging from 0 to 255) to represent a color. Numbers returned by this function can be passed as the color parameter in the `TextColor` or `TextColorRemove` functions. The `RGB` function uses the following formula to calculate the result:

$red * 256^2 + green * 256 + blue$

where $256^2 = 65536$

Examples

`RGB(255;0;0)` returns **16711680** representing red.

`RGB(0;255;0)` returns **65280** representing green.

`RGB(0;0;255)` returns **255** representing blue.

`RGB(0;0;0)` returns **0** representing black.

`RGB(255;255;255)` returns **16777215** representing white.

TextColor

Format

`TextColor(text;RGB(red;green;blue))`

Parameters

`text` - any text expression or text field

`RGB(red;green;blue)` - any integer number from 0 to 16777215 obtained by combining the `red`, `green`, and `blue` values (each ranging from 0 to 255) to represent a color

Data type returned

text

Description

Changes the color of `text` to the color specified by the `RGB` function.

Note Text formatting options will be lost if the data type that is returned is something other than text.

Examples

`TextColor("Plaid";RGB(255;0;0))` returns the word **Plaid** in red.

`TextColor("Plaid";RGB(0;255;0))` returns the word **Plaid** in green.

`TextColor("Plaid";RGB(0;0;255))` returns the word **Plaid** in blue.

`TextColor("Plaid";RGB(0;0;0))` returns the word **Plaid** in black.

TextColorRemove

Format

```
TextColorRemove(text{;RGB(red;green;blue)})
```

Parameters

`text` - any text expression or text field

`RGB(red;green;blue)` - any integer number from 0 to 16777215 obtained by combining the `red`, `green`, and `blue` values (each ranging from 0 to 255) to represent a color

Parameters in curly braces { } are optional.

Data type returned

text

Description

Removes all font colors in `text`, or removes the font color specified by the `RGB` function. If you don't specify a color, all of the text displays in the default font color that was set in Layout mode for the field. When the font color is specified by the `RGB` function, only the specified font color is removed from every portion of the text displayed in that color and these same portions of the text are then displayed in the field's default font color.

Note Text formatting options will be lost if the data type that is returned is something other than text.

Examples

`TextColorRemove("Red Text and Green Text")` returns **Red Text and Green Text** displayed in the field's default font color.

`TextColorRemove("Red Text and Green Text";RGB(255;0;0))` returns **Red Text and Green Text** with only the pure red font color removed from the words **Red Text**.

TextFont

Format

`TextFont(text;fontName{;fontScript})`

Parameters

`text` - any text expression or text field.

`fontName` - any font name expressed in text.

`{fontScript}` - the name of a character set that contains characters required for writing in the specified language.

Parameters in curly braces { } are optional.

Note The fontScript parameter is not enclosed in quotation marks (" "), and can have any of the values listed below in Description.

Data type returned

text

Description

Changes the font of `text` to the specified `fontName` or optional `{fontScript}`. Spellings for font names must be correct and are case-sensitive. Text formatting options will be lost if the data type that is returned is something other than text.

FileMaker Pro looks for a font that matches the specified font name and font script character set. If no matches exist, FileMaker Pro looks for a default font with the font script specified in the **Fonts** tab of the Preferences dialog box. If this fails, then the `TextFont` function uses the default font for the system script specified in the **Fonts** tab of the Preferences dialog box. This font might not be the same as the font script provided.

The following font scripts are available:

- Roman
- Greek
- Cyrillic
- CentralEurope
- ShiftJIS
- TraditionalChinese

- SimplifiedChinese
- OEM
- Symbol
- Other

Examples

`TextFont("Plaid";"Courier")` returns the word **Plaid** in the Courier font.

`TextFont("Plaid";"Arial")` returns the word **Plaid** in the Arial font.

`TextFont("Plaid";"Arial";Cyrillic)` returns the word **Plaid** in the Arial font in the font script of Cyrillic.

TextFontRemove

Format

```
TextFontRemove(text{;fontName;fontScript})
```

Parameters

`text` - any text expression or text field

`fontName` - any font name expressed in `text`

`fontScript` - the name of a character set that contains characters required for writing in the specified language

Parameters in curly braces { } are optional.

Note The `fontScript` parameter is not enclosed in quotation marks (" "), and can have any of the values listed below in Description.

Data type returned

text

Description

Removes all fonts in `text`, or removes the font specified by `fontName` or the combination of `fontName` and `fontScript`. If you don't specify a font, all of the text displays in the default font that was set in Layout mode for the field. When the font is specified by `fontName` or the combination of `fontName` and `fontScript`, only the specified font is removed from every portion of the text displayed in that font and these same portions of the text are then displayed in the field's default font.

Spellings for font names must be correct and are case-sensitive. Text formatting options will be lost if the data type that is returned is something other than text.

FileMaker Pro looks for a font that matches the specified font name and font script character set. If no matches exist, FileMaker Pro looks for a default font with the font script specified in the **Fonts** tab of the Preferences dialog box. If this fails, then the `TextFontRemove` function uses the default font for the system script specified in the **Fonts** tab of the Preferences dialog box. This font might not be the same as the font script provided.

The following font scripts are available:

- Roman
- Greek
- Cyrillic
- CentralEurope
- ShiftJIS
- TraditionalChinese
- SimplifiedChinese
- OEM
- Symbol
- Other

Examples

`TextFontRemove("Arial Text and Courier Text")` returns **Arial Text and Courier Text** displayed in the field's default font.

`TextFontRemove("Arial Text and Courier Text";"Arial")` returns **Arial Text and Courier Text** with the Arial font removed from the words **Arial Text** for all `fontScripts` that use the Arial font.

`TextFontRemove("Arial Text and Courier Text";"Arial";Cyrillic)` returns **Arial Text and Courier Text** with the Arial font removed from Cyrillic character sets.

TextFormatRemove

Format

```
TextFormatRemove(text)
```

Parameters

`text` - any text expression or text field

Data type returned

text

Description

Removes all text formatting from `text` in a single action. All fonts, styles, font sizes, and font colors are removed from the specified text.

Example

`TextFormatRemove("Plaid")` returns the word **Plaid** without any text formatting applied.

TextSize

Format

```
TextSize(text;fontSize)
```

Parameters

`text` - any text expression or text field

`fontSize` - any font size expressed as an integer

Data type returned

text

Description

Changes the font size of the specified `text` to `fontSize`. The font size is described in points (72 points to the inch). Text formatting options will be lost if the data type that is returned is something other than text.

Examples

`TextSize("Plaid";18)` returns the word **Plaid** in 18 point text.

`TextSize("Plaid";24)` returns the word **Plaid** in 24 point text.

TextSizeRemove

Format

```
TextSizeRemove(text{;sizeToRemove})
```

Parameters

`text` - any text expression or text field

`sizeToRemove` - any font size expressed as an integer

Parameters in curly braces { } are optional.

Data type returned

text

Description

Removes all font sizes in `text`, or removes the font size specified by `sizeToRemove`. If you don't specify a size, all of the text displays in the default font size that was set in Layout mode for the field. When the font size is specified by `sizeToRemove`, only the specified font size is removed from every portion of the text displayed in that size and these same portions of the text are then displayed in the field's default font size.

The font size is described in points (72 points to the inch). Text formatting options will be lost if the data type that is returned is something other than text.

Examples

`TextSizeRemove("10 Point Text and 18 Point Text")` returns **10 Point Text and 18 Point Text** displayed in the field's default font size.

`TextSizeRemove("10 Point Text and 18 Point Text";18)` returns **10 Point Text and 18 Point Text** with the 18 point font size removed from the words **18 Point Text**.

TextStyleAdd

Format

```
TextStyleAdd(text;styles)
```

Parameters

`text` - any text expression or text field

`styles` - any named style listed below in Description

Data type returned

text

Description

Adds the specified `styles` to `text` in a single action. You can add multiple styles by using the + operator between style names. Negative values are not valid. All styles will be removed, if the only style specified is Plain. Plain is ignored if mixed with other styles. Styles are not case-sensitive and do not contain spaces.

Text formatting options will be lost if the data type that is returned is something other than text.

The styles that are available are:

- Plain
- Bold
- Italic
- Underline
- Condense

- Extend
- Strikethrough
- SmallCaps
- Superscript
- Subscript
- Uppercase
- Lowercase
- Titlecase
- WordUnderline
- DoubleUnderline
- AllStyles (all available styles)

Examples

`TextStyleAdd("Plaid";Italic)` returns the word **Plaid** in italics.

`TextStyleAdd(FirstName;Bold+Underline)` returns **Sophie** in bold, underlined text when the FirstName field contains Sophie.

The following calculation removes all styles from the text, then italicizes the entire phrase.

```
TextStyleAdd(TextStyleAdd(FirstName;Plain);Italic)
```

The following calculation creates two descriptions of styles, then concatenates two phrases using these styles. Using the `Let` function is an effective way to avoid creating a long and complex `TextStyleAdd` statement.

```
Let([TitleStyle=Smallcaps+Titlecase;BodyStyle=Plain];
TextStyleAdd(titleField;titleStyle)&"¶¶" &
TextStyleAdd(bodyField;BodyStyle))
```

In the following example, you might want to find every occurrence of several words and change their style. Using the `Substitute` function combined with the `TextStyleAdd` function is a good way to accomplish this goal.

Substitute(ArticleBody;[“Phrase1”;TextStyleAdd(“Phrase 1”;Italic)];[“Phrase 2”;TextStyleAdd(“Phrase 2”;Bold)];)

TextStyleRemove

Format

```
TextStyleRemove(text;styles)
```

Parameters

`text` - any text expression or text field

`styles` - any named style from the list of available styles

Data type returned

text

Description

Removes the specified `styles` from `text` in a single action. You can remove multiple styles by using the + operator between style names. Negative values are not valid. The Plain styles cannot be used for this function. Plain is ignored if intermingled with other styles. Styles are not case-sensitive and do not contain spaces.

An additional style called AllStyles has been provided to make it easier to remove all styles. Text formatting options will be lost if the data type that is returned is something other than text.

The styles that are available are:

- Plain
- Bold
- Italic
- Underline
- Condense
- Extend
- Strikethrough
- SmallCaps
- Superscript
- Subscript
- Uppercase
- Lowercase
- Titlecase
- WordUnderline
- DoubleUnderline
- AllStyles (all available styles)

Examples

`TextStyleRemove("Plaid";Italic)` returns the word **Plaid** with the italics style removed.

`TextStyleRemove(FirstName;Bold + Underline)` returns **Sophie** with the bold and underlined styles removed when the FirstName field contains Sophie.

`TextStyleRemove(FirstName;AllStyles)` returns **Sophie** without any styles.

Chapter 14
Time functions

Time functions calculate times and manipulate time information.

Click a function name for details.

This function	Returns
Hour, page 202	A number representing the number of hours in a time value.
Minute, page 202	A number representing the number of minutes in a time value.
Seconds, page 203	A number representing the number of seconds in a time value.
Time, page 203	A time result with the specified number of hours, minutes, and seconds.

Hour

Format

`Hour(time)`

Parameter

`time` - any time value or field of type time

Data type returned

number

Description

Returns a number representing the number of hours in `time`.

Examples

Hour(“12:15:23”) returns 12.

`Hour(Duration) + (Minute(Duration)/60)` returns **2.5**, when the Duration time field contains 2:30:15.

`If(Hour(HoursWorked) > 8;“Overtime Pay”;“ “)` returns **Overtime Pay** when the number of hours in HoursWorked is greater than 8.

`Hour(CheckIn)` returns **3** when the value of CheckIn is 3:24.

Minute

Format

`Minute(time)`

Parameter

`time` - any time value or field of type time

Data type returned

number

Description

Returns a number representing the number of minutes in `time`.

Examples

`Minute(“12:15:23”)` returns **15**.

`Hour(Duration) + (Minute(Duration)/60)` returns **2.5**, if the Duration time field contains 2:30:15.

Seconds

Format

`Seconds(time)`

Parameter

`time` - any time value or field of type time

Data type returned

number

Description

Returns a number representing the number of seconds in `time`.

Examples

`Seconds("12:15:23")` returns **23**.

`Hour(Duration) + (Minute(Duration)/60) + (Seconds(Duration)/3600` returns **2.504166**, if the Duration time field contains 2:30:15.

Time

Format

`Time(hours;minutes;seconds)`

Parameters

`hours` - the hour value of a time

`minutes` - the minutes value of a time

`seconds` - the seconds value of a time

Data type returned

time

Description

Returns a time result with the specified number of `hours`, `minutes`, and `seconds`. FileMaker Pro compensates when you supply fractional hours or minutes. The result is the time, formatted according to the time format of the field in the current layout.

Use the `Time` function or the `GetAsTime` function to enter a time constant into a formula.

Examples

`Time(4;14;32)` returns **4:14:32**.

`Time(4.5;10;30)` returns **4:40:30**.

`Time(4;15;70)` returns **4:16:10**.

Chapter 15
Timestamp functions

Timestamps are used for a wide variety of synchronization purposes, such as marking the exact date and time at which a particular event occurred.

This function	Returns
Timestamp, page 206	A timestamp containing a calendar date and time of day.

Timestamp

Format

`Timestamp(date;time)`

Parameters

`date` - any calendar date or date field

`time` - any time value or time field

Data type returned

timestamp

Description

Returns a timestamp containing `date` as a calendar date and `time` as a time of day.

The format of the result depends on the date and time formats that were in use when the database file was created. You can change the date and time formats in the Regional Settings Control Panel (Windows 2000), the Date and Time Control Panel (Windows XP), or the Date & Time System Preference (Mac OS).

Examples

`Timestamp(Date(10;11;2004);Time(9;10;30))` returns **10/11/2004 9:10:30AM**.

`Timestamp(Date(10;11;2004);Time(13;10;30))` returns **10/11/2004 1:10:30PM**.

`Timestamp(Date(10;11;2004);Time(10;65;5))` returns **10/11/2004 11:05:05AM**.

`Timestamp(Date(10;35;2004);Time(4;5;6))` returns **11/4/2004 4:05:06AM**.

Chapter 16
Trigonometric functions

Trigonometric functions are used to calculate degrees, angles, and other geometric data.

Note All trigonometric functions use radians as the unit of measure. Once you have a result, you can convert the radians into degrees using the `Degrees` function.

Click a function name for details.

This function	Returns
Atan, page 208	The trigonometric arc tangent (inverse tangent) of radians.
Cos, page 208	The cosine of the specified angle.
Degrees, page 209	Degrees, converted from the specified radians.
Pi, page 209	The value of the constant Pi, which is approximately 3.14159.
Radians, page 210	Radians, converted from the specified degrees.
Sin, page 210	The sine of the specified angle.
Tan, page 211	The tangent of the specified angle.

Atan

Format

`Atan(number)`

Parameter

`number` - any numeric expression or field containing a numeric expression

Data type returned

number

Description

Returns the trigonometric arc tangent (inverse tangent) of `number`. The arc tangent is the angle, in radians, whose tangent is equal to the specified number.

Examples

`Atan(1)` returns **.78539816...**.

`Degrees(Atan(1))` returns **45**.

Cos

Format

`Cos(angleInRadians)`

Parameter

`angleInRadians` - any numeric expression or field containing a numeric expression, in radians.

Data type returned

number

Description

Returns the cosine of `angleInRadians`. The specified angle must be represented in radians.

Examples

`Cos(1.047)` returns **.50017107...**.

`Cos(Radians(60))` returns **.5**.

Degrees

Format

`Degrees(angleInRadians)`

Parameter

`angleInRadians` - any numeric expression or field containing a numeric expression, in radians.

Data type returned

number

Description

Converts `angleInRadians` to degrees. Use this function to translate results from trigonometric functions from radians to degrees.

$$\text{Degrees} = \frac{180 \bullet \text{angleInRadians}}{\pi}$$

Examples

`Degrees(Atan(1))` returns **45**.

`Degrees(1.0472)` returns **60.00014030...**.

Pi

Format

`Pi`

Parameter

None

Data type returned

number

Description

Calculates the value of the constant Pi (π), which is approximately 3.14159.

Example

`Pi * 15` returns **47.124**.

Radians

Format

```
Radians(angleInDegrees)
```

Parameter

`angleInDegrees` - any numeric expression or field containing a numeric expression, in degrees.

Data type returned

number

Description

Converts `angleInDegress` to radians. The parameters for FileMaker Pro trigonometric functions must be expressed in radians. If the values you want to use as parameters in a trigonometric equation are in degrees, use this function to convert them to radians first. A degree is equal to Pi/180 radians.

$$\text{Radians} = \frac{\pi \bullet \text{angleInDegrees}}{180}$$

Examples

`Radians(45)` returns **.78539816...**.

`Sin(Radians(30))` returns **.5**.

Sin

Format

```
Sin(angleInRadians)
```

Parameter

`angleInRadians` - any numeric expression or field containing a numeric expression, in radians.

Data type returned

number

Description

Returns the sine of `angleInRadians` expressed in radians.

Examples

`Sin(Radians(60))` returns **.86602**.

`Sin(.610865)` returns **.57357624...**.

Tan

Format

`Tan(angleInRadians)`

Parameter

`angleInRadians` - any numeric expression or field containing a numeric expression, in radians.

Data type returned

number

Description

Returns the tangent of `angleInRadians`.

Note With the `Tan` function, you cannot use values exactly equal to 90 degrees (Pi/2 radians), or multiples of 90 degrees.

$$\text{Tan} = \frac{\text{Sin(angleInRadians)}}{\text{Cos(angleInRadians)}}$$

Examples

`Tan(.13)` returns **.13073731...**.

`Tan(Radians(34))` returns **.6745085**.

Appendix A
Glossary

A

Access key (Windows)

A key that activates a menu, menu item, or control when used with the ALT key. In Windows, this key corresponds to the underlined letter on a menu, command, or dialog box option.

Access privileges

Permission to view and work with certain records, fields, layouts, value lists, and scripts and to perform selected activities in a file.

Account

A username and (usually) password that accesses a file with a defined level of privileges. There are two pre-defined accounts: Admin and Guest. Admin is a Full Access account that can be renamed or deleted. At least one Full Access account that is authenticated via FileMaker must be defined for each database file. Guest account is a special account that cannot be renamed or deleted, but can be made active or inactive.

ActiveX Automation

A Windows programming and scripting protocol that allows external control of specific commands and actions in FileMaker Pro, including opening and closing FileMaker Pro databases, toggling the application's visibility, and performing FileMaker Pro scripts.

AppleScript

A scripting language you can use to control functions of the Mac OS and of applications that support AppleScript (often called scriptable applications).

Apple events

A Mac OS technology that lets applications communicate with one another. FileMaker Pro can send and receive Apple events to and from applications that support them.

Ascending sort order

Alphabetical sequence (A to Z) for words, lowest to highest order for numbers, and earliest to latest for dates and times.

ASCII character set

American Standard Code for Information Interchange. A standard character set used by computer systems worldwide (often extended for different alphabets).

Authentication

The process of checking the validity of an account and password (if one is defined) before assigning privileges and allowing access to a system or a database file. An account authenticated via FileMaker Pro or FileMaker Server is referred to as a FileMaker Account. (FileMaker Server can also authenticate an account via External Server -- an external authentication system such as Apple Open Directory, or a Windows Domain.)

B

Blank layout

A predefined layout that contains empty body, header, and footer parts.

Body part

A layout part that contains individual records from a database file.

Book

In the status area, a control for moving from one record to another in Browse mode, from one layout to another in Layout mode, from one find request to another in Find mode, and from one page to another in Preview mode.

If you don't see the status area, click the status area control at the bottom of the document window.

Boolean value

A Boolean value is either True or False. A field containing any number except zero evaluates as True. A field containing zero, no data, or content that does not resolve into a number evaluates as False. For example, a field containing “ABC,” “ABC0,” or an empty field is False. A field containing “1” or “ABC2” is True.

Break field

In a subsummary part, records are grouped (sorted) by values in another field, called the break field. Whenever the value of the break field changes, the report "breaks" and FileMaker Pro inserts the subsummary part.

Browse mode

The FileMaker mode in which you enter and edit information in fields. Groups of fields make up the records of your database. You can either view one record at a time (choose **View** menu > **View as Form**), or view your records in a list (choose **View** menu > **View as List**), or view records arranged in a spreadsheet-like table (choose **View** menu > **View as Table**).

(Use Browse mode to enter and edit your information; use Layout mode to design how your information is displayed. Use Find mode to find records that match search criteria; use Preview mode to display how your records will print.)

Button

Any layout object (a 3-D rectangle with a text label if created by the Button tool) that performs a specified script in Browse or Find modes.

C

Cache

The amount of memory assigned to FileMaker Pro. A larger cache size increases performance. A smaller cache size saves data to the hard disk more frequently, offering greater protection in case of a system crash.

Calculation field

A field that returns the result of a calculation of values. You can create a formula for the calculation using functions, constants, operators, and information from other fields in the same record.

Cascading style sheets

A system of codes or tags that define how a web browser displays information in a web page. Cascading style sheets provide more control over the layout and appearance of web pages than HTML. Cascading style sheets work like templates for web pages. If a web page contains cascading style sheets, users must view it in a browser that supports cascading style sheets.

CGI (Common Gateway Interface)

The specification for communication between an HTTP server and server gateway programs, which is supported by most servers.

Character encoding

The character set or code page of a file. If necessary, you can specify a character set to be used when importing, exporting, indexing, sorting, and spell-checking files. FileMaker supports ASCII, Windows ANSI, Macintosh, Japanese (Shift-JIS), Unicode UTF-8, Unicode UTF-16, and Unicode UTF-16 Windows.

Client

A user that opens a database file that is shared on a network, published in a browser, or shared via ODBC/JDBC. FileMaker Network settings and privileges determine how clients interact with databases hosted through FileMaker Pro, FileMaker Server, and FileMaker Server Advanced.

Client application

The application that requests data (using SQL) from a data source (using ODBC or JDBC). Also, FileMaker Pro is a client application when it accesses a database hosted by FileMaker Server.

Client/server architecture

The relationship between two networked computers that share resources. The client requests services from the server, and the server provides services to the client.

Clipboard

A temporary storage area in computer memory where FileMaker Pro places the most recent selection you've cut or copied.

Clone

A copy of a FileMaker Pro file that contains all the field definitions, tables, layouts, scripts, and page setup options, but none of the data.

Column

When a database file is viewed as a table, a column corresponds to a field.

Columnar List/Report layout

A predefined layout type for setting up simple reports (columnar or extended columnar) or complex reports with grouped data (subsummary reports). The fields that you specify appear in columns across the screen or page in one line. Field names are in the header part and the footer part is blank.

Combo box

A type of drop-down list you can set up in Layout mode. In the Field/Control Setup dialog box, select **Include arrow to show and hide list**. The list will only drop when users click the arrow, not when they enter the field.

Commit

To save changes to a database file. Certain actions such as navigating between records, finding, and sorting do not change the file’s modification date. Other actions, such as changing data in a record or changing a layout do change the file’s modification date.

Constant

In a formula, an unchanging value. For example, a constant can be a field name, a text literal ("Total:"), or a number. The value of the constant doesn't change from record to record as the formula is evaluated. Text constants in formulas can be up to 253 characters long.

Container data type

Pictures, sounds, QuickTime movies, OLE objects (Windows), and files of any type can be inserted in a container field.

Context

The starting point or perspective from which calculations and scripts are begun, and from which a relationship is evaluated in the relationships graph.

Convert

Opening a data file from another application, which creates a new FileMaker Pro file containing the data.

Also refers to opening a file created with a previous version of FileMaker Pro.

D

Data Entry Only privilege set

One of the three pre-defined privilege sets that appear in every file. The Data Entry Only privilege set allows read/write access to the records in a file, but not design access (for example, the ability to create layouts and value lists).

Data source

The data you want to access (such as a DBMS) and information to locate the data (such as the path or IP address).

Database Design Report

A FileMaker Pro Advanced tool that creates a report of your database schema.

Database file

A collection of information in a file containing one or more tables pertaining to a subject, such as customers or invoices. (A large database can also comprise many database files.)

Database Management System (DBMS)

An application that allows users to store, process, and retrieve information in a database.

Descending sort order

Reverse alphabetical sequence (Z to A) for words, highest to lowest order for numbers, and latest to earliest dates and times.

Developer Utilities

A FileMaker Pro Advanced feature that lets you bind your files into a runtime solution, display the files in Kiosk mode, customize FileMaker menus, and automatically rename and update links in related files.

Domain name

The primary subdivision of Internet addresses, which is indicated by the last part of an Internet address after the final period (or dot). In the United States, the standard domains are .com, .edu, .gov, .mil, .org, and .net. In other countries, the top-level domain is usually the country domain.

Driver

The ODBC or JDBC driver translates SQL queries into commands that a DBMS can understand. It processes ODBC/JDBC calls, submits SQL requests to the data source, and returns the data back to the driver manager, which then routes it to the requesting application (for example, FileMaker Pro).

Driver manager

The control panel that manages communication between requesting applications and data sources. When an application makes a request via ODBC/JDBC, the driver manager routes the request through the correct driver to the correct data source and returns the data to the requesting application. All ODBC/JDBC drivers and data sources to be used on that computer are registered with the driver manager.

Drop-down calendar

A field set up to display an interactive monthly calendar when a user enters the field in Browse or Find mode.

DTD (Document Type Definition)

A formal description of a particular type of XML. It defines a document structure, including the names of data elements and where they may occur within the structure. Valid XML conforms to the rules established in its DTD. XML parsers (such as Xerces) can check the validity of XML to its DTD.

E

Email

Electronic mail. A system for transmitting messages from one computer or terminal to another. A message sent from one computer user to another is stored in the recipient's account mailbox until that person logs onto the system and reads the message.

Embedded OLE object

An embedded OLE object is part of your database file. It can be text, a graphic object, a sound file, or a movie created in another application. FileMaker Pro launches that other application when you view or work with the object.

Envelope layout

A predefined layout with fields arranged for printing on standard business envelopes.

Ethernet

A type of fast local area network used for connecting computers and peripherals within the same building or campus.

EXIF (Exchangeable image file)

A standardized digital camera format for including additional data with each photo, such as the date and time the photo was created, aperture, shutter speed, and other information about each photo.

Export

To save data from one file so that it can be used in another file or in another application.

Expression

A value or any computation that produces a value. Expressions can contain functions, field values, and constants and can be combined to produce other expressions.

Extended privilege

Data sharing permissions that determine if a privilege set allows users to open a shared file using FileMaker Pro or FileMaker Server (fmapp), view a database as an ODBC or JDBC data source (fmxdbc), or view a database using a web browser via Instant Web Publishing (fmiwp), XML web publishing (fmxml), XSLT web publishing (fmxslt), or FileMaker Mobile (fmmobile). Plug-ins from third-party developers may provide additional extended privileges.

External script

A script used by a database file, but defined in a different database file. Use the Perform Script script step to select a defined script from a related file, or to select a file reference to a database file on your hard drive or network.

F

Field

The basic unit of data in a record. You define a field to hold a specific, discrete category of data, such as Last Name, Employee Photo, or to display the result of a calculation. You can define text, number, date, time, timestamp, container, calculation, and summary fields. Field can also refer to the object on a layout that displays the data, such as an edit box, checkbox set, or pop-up menu.

Field boundary

In Layout mode, an outline that shows the size of a field. To see field boundaries, choose **View** menu > **Show** > **Field Boundaries**. You can specify in Layout mode that field boundaries appear in other database modes by choosing **Format** menu > **Field Borders**. (In Browse mode and Find mode, when you make a field active by clicking in it, you see the field boundary whether or not you specify borders.)

Field label

Text on a layout that identifies a field. When you place a field on a layout, you can have FileMaker Pro add a field label that matches the field name. You can change or delete this field label if you want.

Field name

The name you assign to a field when you define the field. When you place a field onto a layout, you can have FileMaker Pro also place an editable field label that matches the field name.

Field type

The part of a field definition that determines what kind of data you can enter in the field and the kinds of operations FileMaker Pro can perform with the data. FileMaker Pro can create text, number, date, time, timestamp, container, calculation, and summary fields. (Global fields contain the same value for all records in the database and can be of any type except summary.)

File path

The location of a file in an operating system as identified by the drive, folders, filename, and file extension.

File reference

A named file path that identifies an external FileMaker file, such as a related file, used by the current database file. File references are useful, for example, when you're working with value lists and scripts. In the Define File References dialog box, you can manage named references and define one or more alternative paths to an external file.

FileMaker Network

A communications method built into FileMaker Pro that allows you to share FileMaker Pro files hosted by FileMaker Pro or FileMaker Server with others over a network. The FileMaker Network settings and privileges you set up determine how other users (called "clients") can open and use the shared file.

Find mode

The FileMaker mode in which you specify criteria for finding a subset of records.

(Use Browse mode to enter and edit your information; use Layout mode to design how your information is displayed. Use Find mode to find records that match search criteria; use Preview mode to display how your records will print.)

Find request

In Find mode, a blank form based on the current layout. Enter search criteria into one or more fields of the find request.

Firewall

A security system used to prevent unauthorized users from gaining access to a LAN. A firewall usually has a single computer that is connected to the Internet and all Internet traffic must pass through that computer.

Footer part

Use the footer part for page numbers or dates. This part appears at the bottom of every screen or page (unless you add a Title Footer). You can have only one footer in a layout. A field in the footer displays data from the last record on that page.

Form view

Displays one record at a time. Fields appear on separate lines, with the field label on the left and the field data on the right. Select this view using the View as Form menu option.

Formula

A set of instructions that FileMaker Pro follows to calculate a value used in a field or as the criteria for matching database records.

Found set

The set of records in a table that are made active by a find request. When you find all records, the found set is the entire table.

Full Access privilege set

One of the three pre-defined privilege sets that appear in every file. The Full Access privilege set allows complete read/write access to a file, including making changes to privileges for the file.

Fully qualified name

The complete name of a field or layout, expressed using the format tableName::[field or layout name], where “tableName” is the name of the underlying table occurrence in the relationships graph upon which the field or layout is based. A fully qualified name identifies an exact instance of a field or layout. Because fields and layouts with common names can be based on different tables, FileMaker Pro uses fully qualified names to avoid errors in calculations and scripts.

Function

A predefined, named formula that performs a specific calculation and returns a single, specific value.

Function list separator

The punctuation character (a semicolon) that separates parameters in a function definition. If you type a comma, FileMaker Pro automatically changes it to a semicolon after you close the Specify Calculation dialog box.

G

GIF (Graphics Interchange Format)

A platform-independent file format often used to distribute graphics on the Internet.

Global field

A field defined with the global storage option can contain one value that's used for all records in a file. Use the value of a global field as a fixed value in calculations, to declare variables in If or Loop script steps, or for fields that rarely need to be updated (for example, a company logo in a container field). A global field can be any field type except summary. A global field can’t be indexed.

Grand summary

Total or other aggregate value for all records in the found set.

Grand summary part

Use grand summary parts to view and display summary information (totals, averages, and so on) in summary fields for all records in the found set. You can add one grand summary part at the top (leading) and one grand summary part at the bottom (trailing) of a layout.

Grouped object

A collection of objects that behaves as one object in Layout mode.

Guest

A user who opens a protected file without specifying an account name and password. The Guest account is assigned a privilege set that determines what guests can do in the file. Guest access may be disabled for a file.

H

Handle

One of the small squares at the corners of a selected object used to resize and reshape the object.

Header part

Use a header part for column headings, titles, and other information that appears only at the top of every page on a layout. FileMaker Pro displays the header in Browse mode and prints it on every page, except the first page if you add a title header. Fields added to a header are printed on every page, using data from the first record on that page.

Home page

The starting page for a web site. It often has some form of a table of contents that allows viewers to link to other parts of the web site.

Host

After a file has been opened and enabled for sharing, the host is either the first FileMaker Pro user to share the file, or the host is FileMaker Server. Once the host opens the file, other users (clients) can access and change the file. All changes are stored in the file on the hard disk where the file resides. FileMaker Network settings and privileges determine how FileMaker Pro clients interact with databases hosted through FileMaker Pro or FileMaker Server.

HTML (Hypertext Markup Language)

A language that is used for displaying and accessing information on the World Wide Web.

HTTP (Hypertext Transfer Protocol)

The Internet protocol that defines how a web server responds to requests for files.

I

Import

To bring (copy) data from a table, another file, or another application into the current table. You can also import scripts from one FileMaker Pro file into another.

Indexing

An option that can be enabled when defining (or changing) the definition of a field. When indexing is enabled, FileMaker Pro builds a list of all the values that occur in the field in the table. This improves the performance of tasks such as finding data, but it increases the size of the database file on disk.

Instant Web Publishing

A method of sharing your FileMaker databases with other users via a web browser. Web clients are limited to the layouts that you provide and to the privilege sets assigned to their user accounts.

To access your database on the web, clients must have the fmiwp extended privilege.

To publish your database on the web, you must have an Internet connection (usually provided through an Internet service provider) and an IP address.

Internet

An international network of many other networks that are linked using the TCP/IP network protocol.

Internet service provider (ISP)

The company from which you purchase your connection to the Internet.

Intranet

A private TCP/IP network of linked computers within a company or organization.

IP (Internet Protocol) address

A four-part number, usually formatted as 12.34.56.78, that uniquely identifies a computer on the Internet.

J, K

JDBC

A Java API that uses SQL statements to access data from, and exchange data with, many database management systems. The JDBC driver communicates between your Java applet and the FileMaker Pro or FileMaker Server Advanced data source.

JPEG (Joint Photographic Experts Group)

A platform-independent file format often used to distribute graphics on the Internet.

Key

A column (or columns) that makes a particular row unique (corresponds to a match field).

L

Labels layout

A predefined layout with fields arranged for printing on mailing label stock, and media and index sheets.

LAN (local area network)

A connection between computers within a location using cable or a wireless system.

Layout

An arrangement of fields, objects, pictures, and layout parts that represents the way information is organized and presented when you browse, preview, or print records. You can design different layouts for entering data, printing reports and mailing labels, displaying web pages, and so on.

Layout mode

The FileMaker mode in which you determine how information in fields is presented on the screen and in printed reports.

(Use Browse mode to enter and edit your information; use Layout mode to design how your information is displayed. Use Find mode to find records that match search criteria; use Preview mode to display how your records will print.)

Layout part

A section of a layout that organizes or summarizes information. Layout parts include Body, Header, Footer, Title Header, Title Footer, leading and trailing Grand Summary, and leading and trailing Subsummary.

Layout pop-up menu

Near the top of the status area, a pop-up menu from which you can choose a defined layout. This menu is available in all modes.

If you don't see the status area, click the status area control at the bottom of the document window.

Layout theme

The appearance of an onscreen or printed report. You can choose a theme when you use the New Layout/Report assistant.

Layout types

FileMaker Pro includes six predefined layout types: Standard Form, Columnar List/ Report, Table View, Labels, Envelope, and Blank layout. You can use the predefined layout types as they are, or change them to suit your needs.

To use a predefined layout type, in Layout mode, choose Layouts menu > New Layout/ Report. The assistant guides you through creating the type of layout or report you want. To change the layout, use the tools and commands in Layout mode to tailor the layout for your needs.

LDAP (lightweight directory access protocol)

A protocol for accessing online directory services.

Link

On a web page, text or a graphic which -- when you click it -- displays an associated web page or a specific element within a page.

Also, the HTML code that creates a link to another web page or to a specific element within a page.

In OLE, a connection to an object.

Linked OLE object

A linked OLE object exists in an external source file and is displayed in your database. You can update linked objects to work with current data. A linked OLE object can be a graphic object, sound file, movie, or text created in another application. FileMaker Pro starts that other application when you view or work with the object.

List view

Displays records one record at a time in a list format. Select this view using the View as List menu option.

Locked object

An object on a layout that cannot be edited or deleted. To lock an object, in Layout mode, select it and then choose Arrange menu > Lock. The object's selection handles dim.

To unlock an object, choose Arrange menu > Unlock.

Lookup

A lookup matches records and copies data from a related table into a field in the current table. After data is copied, it becomes part of the current table (as well as existing in the table it was copied from). Data copied to a table doesn't automatically change when the values in the related table change.

Lookup target field

The field that you want data copied to during a lookup.

Lookup source field

The field in the related table that contains the data you want copied during a lookup.

M

Many-to-many relationship

A correspondence between data in database tables in which more than one record in the first table is related to more than one record in another table, and more than one record in that table is related to more than one record in the first table.

Match field

For relational databases and lookups, a field in a source table and a field in a related table that contain values you want to use to find matching records. (A match field is sometimes called a key field or trigger field.)

For importing records, values in the match fields determine which records in the source table update which records in the target table.

Menu

A list of menu items. Each menu has a title that appears on the menu bar.

Menu bar

The area at the top of the screen (Mac OS) or window (Windows) that displays the installed menu set.

Menu item

One item listed in a menu on the menu bar. A menu item corresponds with one command, submenu, or separator.

Menu item properties

All the settings for a menu item, including platform, display title, shortcut, and action.

Menu set

The collection of menus that installs on the menu bar.

Merge field

A placeholder on a layout for the contents of a database field. A merge field expands or contracts in Browse and Preview modes, or when printed, to fit the amount of data in the database field for each record.

Merge fields are useful for mail merge form letters; FileMaker Pro uses merge fields in predefined Labels and Envelope layouts.

Mode

In FileMaker Pro, the four different environments (Browse, Find, Layout, and Preview) that you use to work with your database file.

Mode pop-up menu

A pop-up menu in the lower-left corner of the document window from which you can choose a different mode (Browse, Find, Layout, or Preview). This menu is available in all modes.

Multi-key field

A match field that contains more than one value, each on a separate line. A multi-key field can be used in one table involved in a relationship, to match several possible values in the match field of the other table.

Multimedia

Files that combine media, like text, graphics, sound, animation, and video.

N

Network protocol

A network protocol (for example, TCP/IP) is a set of rules that govern how computers exchange messages on a network.

New Layout/Report assistant

A wizard that guides you through creating a layout or report according to options you choose.

O

Object

On a FileMaker Pro layout, an object is a discrete entity or shape that you can select, move, modify, delete, or name. Lines, fields, buttons, portals, imported graphics, blocks of text, tab controls, and web viewers are objects.

Object effect

Gives objects in layouts a 3-dimensional appearance. Choose an object effect from the object effects palette. You can choose Embossed, Engraved, or Drop Shadow effect.

Object Grids

An invisible snap-to grid that aligns objects you create or move.

ODBC

An API that uses SQL statements to access data from, and exchange data with, many database management systems. FileMaker Pro uses ODBC drivers to share data (as a data source) and to interact with data from other applications (as a client application).

OLE client

A document that includes an object linked from another document via OLE (Object Linking and Embedding) or that includes an embedded OLE object.

OLE object

Information from another application that you can include in a FileMaker Pro file. You work with OLE (Object Linking and Embedding) objects -- like graphics, spreadsheets, sounds, or text -- in container fields or layouts in FileMaker Pro files.

1-away relationship

A correspondence between database tables in which two tables are directly related to each other, with no other tables between them.

One-to-many relationship

A correspondence between data in database tables in which one record in the first table is related to more than one record in another table.

One-to-one relationship

A correspondence between data in database tables in which one record in the first table is related to one record in another table.

Operands

Components of a formula. For example, in the formula Quantity*Price, Quantity and Price are the operands.

Operators

In calculations, symbols that indicate how to combine two or more expressions. These include the standard arithmetic operators (+, -, /, *), logical operators that set up conditions that must be met to make a value True or False (AND, OR, XOR, and NOT), and find operators (<, =, @) that help you limit the records defined in a find request.

In the relationships graph, symbols that define the match criteria between one or more pairs of fields in two tables. These include: != (not equal), > (greater than), < (less than), = (equal), <= (less than or equal to), >= (greater than or equal to) and x (all rows, or cartesian product).

P

Parent script

A script that defines script parameters and can call other scripts.

Part label

In Layout mode, the label that appears at the left or side of the bottom dividing line of each layout part. By dragging it up or down, you can use the part label to resize a part. You can also open the Part Definitions dialog box by double-clicking the label.

Plug-in

Software that extends the capabilities of an application in a specific way.

Port

A pre-assigned number that indicates a "logical connection place" where a client (such as a web browser) can connect to a particular server application on a networked computer. Port numbers range from 0 to 65536. Port 80 is the default port for HTTP services such as FileMaker Pro web publishing, but you can use another port number if 80 is already in use by another server application.

Portal

For relational databases, a layout object in one table where you place one or more related fields to display in rows the data from one or more related records.

Preview mode

The FileMaker mode in which you see how layouts will look when they're printed.

(Use Browse mode to enter and edit your information; use Layout mode to design how your information is displayed. Use Find mode to find records that match search criteria; use Preview mode to display how your records will print.)

Privilege set

A defined set of permissions that determines a level of access to a database file. You can define as many privilege sets as you like for a file. There are three pre-defined privilege sets: Full Access, Data Entry Only, and Read-Only Access.

Q

Query

Retrieving, manipulating, or modifying data from a data source by sending SQL statements. Also, requesting, and then receiving, data from a DBMS. You can also add, edit, format, sort, and perform calculations on your data using queries.

QuickTime

An application from Apple Computer, Inc. that compresses, stores, and plays files combining text, sound, animation, and video.

QuickTime VR

A type of QuickTime movie. QuickTime VR movies let you view panoramic images or objects from many angles.

R

Read-Only Access privilege set

One of the three pre-defined privilege sets that appear in every file. The Read-Only Access privilege set allows read access to the records in a file, but not write or design access.

Record

One set of fields in a database table. Each record contains data about a single activity, individual, subject, or transaction.

Recursive script

A script that calls itself.

Related field

For relational databases, a field in one table that is related to a field in another table (or to a different field within the same table). If a relationship is defined between two tables (even through another table), data in fields in one table can be accessed from the other table.

Related record

A record in the related table whose match field (according to the relationship used) contains a value that's equal to the value in the match field of another table.

Related table

For relational databases, the table that contains the data you want to access and work with in the current table. For lookups, the table that contains the data to copy.

Relational database

A group of one or more database files that, when used together, contain all the data you need. Each occurrence of data is stored in only one table at a time, but can be accessed in any table, either in the same file or from a related file. Data from another table or file is displayed in the current table without being copied, and the data changes whenever the values in the other table or file change.

Relationship

Relationships provide access to data from one table to another. Relationships can join one record in one table to one record in another table, one record to many other records, or all records in one table to all records in another table, depending on the criteria you specify when you create the relationship in the relationships graph.

Relationships graph

In the Relationships tab of the Define Database dialog box, you can see the occurrences of tables both in the current file and from any external, related database files. In this relationships graph, you join tables and change relationships between fields in different tables.

When you create a new table, a visual representation, or occurrence, of the table appears in the relationships graph. You can specify multiple occurrences (with unique names) of the same table in order to work with complex relationships in the graph.

Repeating field

A field containing multiple, separate values.

Report with grouped data

A subsummary report that you create using the Columnar List/Report layout type. Reports with grouped data can include totals and subtotals.

Row

When a database file is viewed as a table, a row corresponds to a record.

S

Schema

In database terminology, a schema is the organization or structure of the elements, objects, and attributes of a database. A schema report will typically list all the database files, fields, scripts, layouts, relationships, tables, and so on in the database, and will document their properties.

Script

One or more instructions (script steps) that you define to automate repetitive or difficult tasks. You define scripts using ScriptMaker. You run a script by clicking its button, choosing its menu command, calling it from another script or a plug-in, or running it at startup or when a file closes.

Script Debugger

A FileMaker Pro Advanced tool for debugging FileMaker Pro scripts.

Script step

A ScriptMaker command that you include in a script.

ScriptMaker

A feature in FileMaker Pro that enables you to create a script that tells FileMaker Pro to perform one action or a sequence of actions, or script steps.

Search criteria

In Find mode, the values and operators you specify to locate records. For example, if you type ABC Travel in the Vendor field, FileMaker Pro looks for and returns all records that have this name in the Vendor field.

Self-join

A relationship between fields in the same table. This creates another occurrence of the table in the relationships graph.

Separator

A line within a menu that separates or groups menu items.

Serial number

A unique number entered by FileMaker Pro for each record. You can tell FileMaker Pro to automatically enter a serial number for each record by setting the Auto-Enter options in the Options for Field dialog box. You can also serialize records by choosing Records menu > Replace Field Contents in Browse mode.

Shared database

A database file for which sharing has been enabled, which permits users to access the database file over a network. FileMaker Pro, FileMaker Pro Advanced, FileMaker Server, and FileMaker Server Advanced each support one or more of the following ways to share databases: FileMaker Network sharing, which permits multiple FileMaker Pro users to use a database file simultaneously; web publishing of databases to web browser users; and sharing of data with other applications via ODBC/JDBC.

Shortcut

Also known as keyboard shortcut. One or more keys that users can press to perform tasks.

Shortcut menu

Use to edit objects or data quickly by choosing commands from a shortcut, or context, menu. Commands vary depending on the mode you're using, the item the cursor is over, and whether an item is selected.

To display a shortcut menu, Right-click (Windows) or Control-click (Mac OS) the item.

Slider

In the status area, the control below the book for quickly moving to a record in your database file based on its location in the file. For example, in Browse mode, slide the slider to the left to go to the first record and to the right to go to the last record.

In Browse mode, moving the slider changes the current record. In Find mode, moving the slider changes the current find request. In Layout mode, moving the slider changes the current layout. In Preview mode, moving the slider changes the current page.

Sliding objects

Objects that move together to close gaps left by entries in adjacent fields.

Set sliding in Layout mode (choose Format menu > Sliding/Printing).

Sort order

The sequence for rearranging records. Records are sorted by the first field in the sort order list, then the second, and so on. Values within each field are sorted by the order specified (ascending, descending, or custom).

Source file

The file from which you bring data during importing or exporting, or the file from which you add a table to the relationships graph.

Source table

The table upon which one or more tables in the relationships graph are based. The source table is the table defined in the Tables tab of the Define Database dialog box.

SQL

A structured programming query language that controls and interacts with a DBMS.

Stacking order

The order in which objects overlap on a layout. You can change this order by cutting and pasting objects or by choosing Arrange menu > Bring to Front, or Bring Forward, or Send to Back, or Send Backward in Layout mode.

Standard Form layout

The default layout, with all fields arranged on separate lines in the order they were defined. The body part is only as tall as it needs to be to include all the fields in the database. This layout includes header and footer parts.

Startup script

A script that automatically runs when a file is opened. You can script such things as setting system formats to the user's formats or setting a database to be shared in a startup script.

You specify a startup script in the File Options dialog box.

Status area

The area at the left side of the document window that displays the book and status information. In Find mode, the status area includes Find buttons. In Layout mode, it includes tools and controls for drawing, and working with fields, layout parts, buttons, and portals.

Submenu

A menu that extends from another menu item.

Sub-script

A script that is called from another script.

Subsummary parts

Use summary parts to view and display information from one or more records. You place a summary field in a summary part to display a summary of information for each group of records sorted on the break field. You can add one or more subsummaries above (leading) or below (trailing) the body.

Subsummary value

Aggregate values for different categories of data within a field. For example, a subsummary value can be the total of employees for each department.

Summary field

A field that contains the result of a summary calculation of values across a group of records.

System formats

Settings you control with control panels to determine how dates, times, currency, and numbers display and sort on your computer. (See the documentation that came with your computer for information on using these control panels.)

If the system formats are different on your computer from the ones on the computer where the database file was created, the first time you open the file, FileMaker Pro will ask you which system formats to use.

T

T square

Nonprinting, movable horizontal and vertical guidelines to help you position and align objects in Layout mode. An object's left or right boundary, top or bottom boundary, or center "snaps to" the T square lines.

Tab control

A layout object made up of one or more tab panels that allows you to organize fields and other objects within each tab panel's borders.

Tab order

The order in which you move from field to field in a record. In Layout mode, you can define a custom tab order and include buttons, tab controls, and web viewers in the tab order.

Tab panel

A component of a tab control. The tab panel is the area displayed when a tab in a tab control is selected. You can place objects such as lines, fields, buttons, portals, imported graphics, blocks of text, tab controls, and web viewers in tab panels.

Table

A collection of data pertaining to a subject, such as customers or stock prices. A database file contains one or more tables, which consist of fields and records. When you create a new table, a visual representation, or occurrence, of the table appears in the relationships graph. You can specify multiple occurrences (with unique names) of the same table in order to work with complex relationships in the graph.

Table view

Displays multiple records in a tabular format like a spreadsheet. Each record appears in a row, and each field appears in a column. Select this view using the View as Table menu option.

Target file

The file into which you bring data during importing.

TCP/IP (Transmission Control Protocol/Internet Protocol)

The basic communication protocol that is the foundation of the Internet.

Template

Or Starter Solution. A pre-designed and formatted FileMaker Pro file, or web page, that you can copy and change for your own use.

Also, a pre-defined website that you can select in the Web Viewer Setup dialog box to help you create a web viewer quickly.

Text baseline

In Layout mode, the dotted guideline that appears at the base of the text in a field or text block. When you move a field or text block, the text baseline extends out horizontally from the object to help you align it with other objects. You can specify in Layout mode that text baselines appear in other database modes by choosing Format menu > Field Borders.

Text expression

Any expression that returns a text result. For example, a text expression can be a constant ("London"), a field reference (Status), or a calculated value (Rightwords(Lastname, 1)).

Timestamp

A field type combining date and time that is compatible with the ODBC requirement for the SQL format [yyyy.mm.dd hh:mm:ss.sss].

Tool panel

In the status area in Layout mode, the collection of tools that includes the selection tool (pointer), text tool, line tool, rectangle tool, rounded rectangle tool, oval tool, field/control tool, portal tool, tab control tool, web viewer tool, and button tool.

If you don't see the status area, click the status area control at the bottom of the document window.

Toolbar

Use items in the toolbar to access many FileMaker Pro commands. Different toolbar items are available in each mode. FileMaker Pro includes four toolbars: Standard, Text Formatting, Arrange, and Tools toolbar.

Tooltip

A small box that displays text when a user moves the cursor over a layout object. Tooltips display in Browse and Find modes.

U

Unicode

A worldwide standard that, in one code page, provides a unique number for every character in human languages, no matter what the platform, software program, or operating system.

Unit of measure

In Browse and Layout modes, you can set the unit of measure to pixels, inches, or centimeters.

Unstored calculation

A calculation field with a result that is only calculated when the value is needed, for example, to browse or print. In most cases, FileMaker Pro makes a field stored when you define it, but you can change the storage type to unstored.

URL (Uniform Resource Locator)

A web address, which consists of a protocol, a host name, and optionally a port, a directory, and a filename. For example, http://www.filemaker.com/ , ftp://12.34.56.78:80/myfiles/, or fmp7://mywebsite.com/sample.fp7.

V

Value list

To save time and ensure accuracy during data entry, define frequently used text, number, date, or time values as a value list. When you enter data, you can choose from the list of defined values.

You can format value lists to display in a drop-down list or pop-up menu, or as checkboxes or option (radio) buttons. The values in a value list can be user-defined or based on the values in a field in the same file or in a different file. You can also define relationships for use with value lists, to access and display particular related values. Another option is to use a value list from another file.

Variable

In a calculation, a symbol or name that represents a value. Use the Set Variable script step to specify the name, value, and repetition of the variable. Names prefixed by $ are local variables available only within the current script. Prefix the name with $$ to make the variable available throughout the current file (global). Local and global variables can have the same name but they are treated as different variables.

View

An arrangement of your data primarily useful for onscreen manipulation. In Browse mode, Find mode, or Preview mode, View as Form displays individual records, View as List displays records in a list, and View as Table displays records in a spreadsheet-like table format.

In FileMaker Pro Instant Web Publishing, views are web pages for working with your database in a web browser.

W, X, Y, Z

Web address

The calculated expression that you enter in the Web Viewer Setup dialog box. A web address is not equivalent to a URL that a web user could enter in a web browser.

Web browser

An application that you can use to view web pages/sites on the World Wide Web or an intranet. Browsers download the web pages onto the viewer's computer.

Web page

An HTML document displayed on the Internet or on an intranet.

Web server

A computer that is connected to the Internet or an intranet, and has a web server application installed on it. Web server applications deliver web pages and associated files to web browsers.

Web site

One or more web pages connected by links and displayed on the Internet or on an intranet.

Web user

Someone using a web browser to access a FileMaker Pro database published on the World Wide Web or an intranet.

Web viewer

A layout object that allows you to display information from websites based on data in your database.

World Wide Web

An interlinked collection of web pages residing on web servers, and other documents, menus, and databases, which are available via URLs.

XSLT (Extensible Stylesheet Language Transformations)

XSLT (XSL Transformations) is a subset of XSL (Extensible Stylesheet Language) that is used to transform, or change, the structure of an XML document into a different document format. For example, you can use an XSLT style sheet to transform an XML document into an HTML or TXT document.

XML (Extensible Markup Language)

Instead of being a rigid file format, XML is a language for defining agreed-upon formats that groups can use for exchanging data. Many organizations and businesses are using XML to transfer product information, transactions, inventory, and other business data.

FileMaker Pro can export XML data that can then be used, for example, by spreadsheet applications, data charting applications, and enterprise SQL databases. FileMaker Pro can also import XML data.